

FLIGHT

&
The AIRCRAFT
ENGINEER.

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

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Index and Title Page for Vol. IX.

The 8-page Index for Vol. IX of "FLIGHT" (January to December, 1917) is now ready, and can be obtained from the Publishers, 36, Great Queen Street, Kingsway, W.C. 2. Price 8d. per copy, post free.

EDITORIAL COMMENT.

"Newspapers are an essential part of our war organisation."—
(Sir Auckland Geddes, Minister of National Service.)



ON Monday last the Royal Air Force officially came into being and marked the consummation of all the efforts that have, for three years of war, been made in the direction of securing better co-ordination of manufacture and operation than was possible under the now departed system of dual control. It is certainly not too much to say that the 1st of April, 1918, marks an epoch in the history of the fighting forces of the British Crown. It has seen called into active being a new Service which, we are fully convinced, will in the time to come rival in magnitude the older Services from which it has sprung, even if it does not dwarf them into comparative insignificance. The future safety of the Empire is in the air as well as on and under the sea,

and it is thus impossible to look into that future without being forced to the irresistible conclusion that, while armies as we known them now—and even fleets—may disappear as a means of practical war, our aerial navies must and will continue to increase and multiply until the millennium, when there shall be no more war.

As a matter of fact, when we speak of the disappearance of armies as we known them now it is in a spirit of sober vision and of calculated outlook that we make use of the phrase. It is because we believe that in the very near future aircraft will render impossible the employment of masses of men on the ground that we speak as we do. There may be some who think we go too far in this, and who hold that even in their highest development aircraft can be no more than an arm subsidiary to ground armies and fleets at sea. Certainly it is an arguable proposition, but to our way of thinking there can be no better answer to such a line of reasoning than to point to the enormous developments which have already taken place—developments that have already compelled the separation of the Flying Services from their elder sisters. The single fact that in less than four years the aerial arm has grown from a veritable toy adjunct to our field armies into a gigantic separate Service whose activities are in all human probability destined to be decisive of the issues of the greatest war in history, is earnest enough of still greater developments to come. Further than that, we can see the writing on the wall in the things that are happening on the Western Front now. Day by day and night after night our air squadrons are making every moment hideous to the enemy. They have searched his bivouacs and concentration areas with bombs and machine gun fire; caused holocausts of casualties in his ranks; and have done far more than is yet realised in the holding up of his massed advance. In fact, it is probably not going too far to say that had it not been for the magnificent work of the personnel of what is now the Royal Air Force, the results of the battle, so far as they fall to be written now, would have been far more disquieting to the Allies. As a matter of fact, it is within our knowledge that this is an understatement of the case, but more cannot be said about the work of the British airmen in the great Battle of the Somme until the necessarily fragmentary stories which are current to-day have been sifted and pieced together. When that time

comes we shall be able to dimly realise what the army and the Empire owe to the self-sacrificing devotion of the R.A.F.

That, however, is not precisely what we had in mind. As we get the stories of the air fighting of the past fortnight it seems to become increasingly clear that the battles of the future will be fought in the air, if only because the development of the aerial arm will make it impossible to maintain ground armies. When the summit of development has been reached it will be impossible to maintain communications; lines of position will be untenable under the searching attack of aircraft; armies will find it impossible to manœuvre without being decimated by fire from the air; everything will be driven either underground or into the air. The logical sequence of this is that the ground army—as we must call it—having lost its whole *raison d'être*, must disappear, and war will be transferred to the air. That seems to us to be as certain as that night follows day, and, pursuing the line of thought, it is easy to foresee the time when the armies shall have ceased to exist, except as the hewers of wood and drawers of water for the Air Services, and the latter will have the whole business of fighting to itself. That is, unless—as we all most devoutly hope—Armageddon shall have taught the nations of the earth that there are more glorious and more profitable concerns than war and have decided them that there shall be no more. But we fear that so long as there are nations, and so long as human nature endures as it is, the *ultima ratio regum* will remain.

The Royal Air Force and the Army Council.

In an Army Order issued on Monday last the new relations between the Royal Air Force and the Army Council are laid down *in extenso*. The Order, which we reproduce in full in another part of this issue of "FLIGHT," calls for very little in the way of comment since it merely embodies the necessary routine, so to say, which will govern *liaison* between units of the R.A.F. operating under the orders of military commanders in the field and the latter. The main thing is that there is nothing at all in the Order that appears to call for criticism when regarded from the viewpoint of the Royal Air Force. This is, to our way of thinking, a most important point, and it is only its importance when viewed in the proper light that justifies the judgment we have passed upon the Order, which would otherwise be a mere piece of presumption. The point we have in mind is that, so far from the constitution of the Royal Air Force as a separate service having—as the pessimists would have had us believe—given rise to jealousy and friction between the Army Council and the Air Ministry, the Order is eloquent of a whole-hearted desire to adjust matters so that every possible point of friction shall be eliminated in advance, and of a sincere desire to bend the new order of things to the Imperial service.

Which is all to the good and promises well for the future relations of the Services.

There is one matter, however, which comes to mind but which really has nothing to do with the Order under discussion. Our readers will remember that, some three weeks ago, we took occasion to deplore the passing of the old Air Service ranks and the substitution of Army titles for them. Since we wrote we have had many opportunities of discussing the views enunciated with officers of both the military and naval wings of the Service, and we find that,

generally, they are in complete agreement with those views. Indeed, so strong does the feeling appear to be that we do not hesitate once more to appeal to the Secretary of State for Air and his advisers to reconsider the decision which has been taken to re-grade the Royal Air Force officers by military titles. To some it may appear to be a small matter whether an officer be known as "Captain" or as "Flight-Commander," but it is these "small" matters that go to make up that exceedingly valuable military asset which passes by the name of *esprit de corps*. We are absolutely convinced that the *esprit de corps* of the Royal Air Force will be most adversely affected by the new order of things—and that, if we are correct, is certainly not a small matter. It is not at all too late to retrieve what we regard as a bad start, and we sincerely trust that Lord Rothermere and his advisers will still be able to see their way clear to a revision of the re-grading system.

The Standardisation of Aircraft.

The calling together of an Inter-Allied Conference on aircraft standardisation is certainly a move that should be welcomed as likely to lead to the best results in the way of increased output of the aircraft necessary to the prosecution of the war. It has been called at the right time. Had any strong move towards standardisation been made at an earlier stage it is more than probable that the effect would have been an adverse one, in that too early standardisation would inevitably have led to the hampering of progress in design. Again, had it been left until later it seems certain that future output would have been prejudiced, for the reason that we have now reached a stage in the development of aircraft for warlike purposes which justifies us in thinking that no further really important discoveries or developments are likely to eventuate at a period in this war when they would necessarily cause us to drastically revise all our presently conceived ideals. Naturally, we do not for a moment desire to be taken as thinking that finality, or anything approaching finality, in the design of aircraft has been reached. On the contrary, we believe that design will progressively improve for a long time to come, but in all such matters there arrives a time when it is no longer wise to wait on the future and when we must be content to carry on with large numbers of something a little below the ideal rather than to stunt the growth of the tree by waiting for something better. We believe that stage of development in aircraft has been reached now, and that for the purposes of the war we shall do better to standardise with discretion the best we have now and to go all out for the maximum output than to wait on in the hope of still further improved designs.

We are not quite clear, after reading the published reports of the first sitting of the Conference, to what extent it is intended to carry standardisation. As a matter of fact, it does not appear that any real decisions have been taken as yet. So far, all that appears to have been done is the appointment of permanent authoritative committees representative of the Allied nations in order to maintain continuity of action and to carry forward in the most efficient manner possible the work of co-ordination, the Engineering Standards Committee, for the time being, acting as the distributing centre of this permanent international organisation. So far as the British committee is concerned—this being the only one of

whose probable efficiency we are competent to judge—its *personnel* is certainly such as to command respect and confidence, and we feel that, in their hands this most important matter of standardisation will rest safely.

By the way, is it not due that some official recognition should be extended to Mr. Chas. Bright who, in his minority report on the proceedings of the R.F.C. Commission of Enquiry, was really the first to officially draw attention to the need for standardisation? Reading back through his remarks, which were of an exhaustive nature, one cannot help being struck by the closeness with which his recommendations are now being followed. It is true that when those recommendations were made the time was, in all probability, not entirely ripe for their adoption, but it does seem to us that here was a clear case of exceedingly useful thinking ahead—thinking which now seems to be on the eve of bearing valuable fruit. Honour to whom honour is due.

Medical Research and the Royal Air Force.

It is a little disappointing to find that the important matter of the medical care of our flying officers does not come in for more attention in the chapter of the report of last years' work of the War Cabinet, dealing with the Air Service. A little paragraph states that the Medical Research Committee, appointed in March of last year, had performed valuable services in the investigation of the various physiological phenomena produced by flying at high altitudes, and that considerable progress has been made in the methods of prevention and cure of disabilities peculiar to flying men. Several attempts have been made in the House of Commons to elicit definite information on the point, but so far without success. It is, however, gratifying to see that it is being more

CAPTAIN MCCUDDEN,

It was announced in the *London Gazette* on April 2nd that the King has been pleased to approve of the award of the Victoria Cross to Second Lieutenant (Temp. Capt.) JAMES BYFORD MCCUDDEN, D.S.O., M.C., M.M., R.F.C., for conspicuous bravery, exceptional perseverance, keenness and very high devotion to duty.

Captain McCudden has at the present time accounted for 54 enemy aeroplanes. Of these 42 have been definitely destroyed, 19 of them on our side of the lines. Only 12 out of the 54 have been driven out of control.

On two occasions he has totally destroyed four two-seater enemy aeroplanes on the same day, and on the last occasion all four machines were destroyed in the space of 1 hour and 30 minutes.

While in his present squadron he has participated in 78 offensive patrols, and in nearly every case has been the leader. On at least 30 other occasions, whilst with the same squadron, he has crossed the lines alone, either in pursuit or in quest of enemy aeroplanes.

The following incidents are examples of the work he has done recently:—

On December 23rd, 1917, when leading his patrol, eight enemy aeroplanes were attacked between 2.30 p.m. and 3.50 p.m. Of these two were shot down by Captain McCudden in our lines. On the morning of the same day he left the ground at 10.50 and encountered four enemy aeroplanes; of these he shot two down.

On January 30, 1918, he, single-handed, attacked five enemy scouts, as a result of which two were destroyed. On this occasion he only returned home when the enemy scouts had been driven far east; his Lewis gun ammunition was all finished and the belt of his Vickers gun had broken.

As a patrol leader he has at all times shown the utmost gallantry and skill, not only in the manner in which he has attacked and destroyed the enemy, but in the way he has during several aerial fights protected the newer members of his flight, thus keeping down their casualties to a minimum.

This officer is considered, by the record, which he has made

and more recognised by the authorities and the medical profession that the man who undertakes flying work is subject to conditions which do not apply to everyday life on *terra firma*. Among the service medical officers attached to aerodromes there are several who have made it a special study, notably Surgeon H. Graeme Anderson, R.N., the author of two papers which have recently been summarised in these pages. The paper which he read before the Medical Society of London the other day, not only contained much food for constructive thought but also led to a useful discussion. As was pointed out by Fleet Surgeon R. C. Munday, R.N. (now a Major-General in the Air Force) the "ideal to aim at was on the one hand to exclude from aviation all those who from medical causes would swell the non-effective lists, the casualty returns, the number of fatal accidents, and the number of crashed machines; while, on the other hand, at this crisis in the national fortunes we must ever strive to attain such perfection of method in examination that we prevent no man from serving the King and country in the air who was fit to do so." It is difficult for the general service medical officer to give the time to the study of the special conditions which apply to those who are engaged on work in the air, and it is to be hoped that the Air Council will not unduly delay the setting up of a separate medical service. It is necessary for the doctor, if he is to give proper care to his charges, to not only live with his men but to fly with them. This is recognised by such conscientious workers as Surgeon Anderson, who in his lecture gave some instances of practical experiments carried out by himself in mid-air. There is much to be done and no time should be lost in organising the special medical service and arranging for the collection and codification of data on the subject.

V.C., D.S.O., M.C., M.M.

by his fearlessness, and by the great service which he has rendered to his country, deserving of the very highest honour.

(1) The Military Medal was awarded this officer (when a Flight Sergeant in the R.F.C.) for consistent gallantry, courage and dash during the month of September, 1916, in attacking and destroying an enemy machine, and forcing two others to land. He also twice crossed the enemy's lines at a very low altitude in attacks on hostile balloons under very heavy fire.

(2) The Military Cross was awarded for conspicuous gallantry in action on February 15th, 1917, on which occasion this officer followed a hostile machine down to a height of 300 ft., and drove it to the ground.

(3) Captain McCudden earned the bar to his Military Cross for conspicuous gallantry, dash and skill during the period of August 15th–September 28th, 1917, when he took part in many offensive patrols (over 30 of which he led) and destroyed five enemy machines, driving three others down out of control.

(4) The Distinguished Service Order was bestowed on this officer for conspicuous gallantry on November 29th–30th, 1917, when he attacked and brought down an enemy two-seater within our lines, both occupants being taken prisoner.

He also encountered an enemy machine during very bad weather conditions at 2,000 ft., and fought it down to a height of 100 ft., when it was destroyed. Captain McCudden came down to within a few feet of the ground in the enemy's lines, and finally crossed the line at a very low altitude. Subsequent to the award of the bar to the Military Cross to this officer he had been responsible for the destruction of seven enemy machines, two of which fell within our lines.

(5) For his skill and gallantry on November 23rd, 1917, Captain McCudden was awarded a bar to the Distinguished Service Order. On which occasion he destroyed four enemy machines by his fearlessness and clever manoeuvring, three of which fell within our lines. He also drove his patrol against six enemy machines, driving them off.

HONOURS.

Honours for the R.F.C.

It was announced in a supplement to the *London Gazette* on March 26th that the King has been pleased to confer the following rewards for gallantry and distinguished service in the Field. The acts of gallantry for which the decorations have been awarded will be announced as early as practicable:—

Distinguished Service Order.

Lieut. (Temp. Capt.) G. H. Bowman, M.C., R. War (S.R.) and R.F.C.
Capt. R. M. Drummond, M.C., R.F.C.

Bar to Military Cross.

Capt. W. E. Molesworth, M.C., R. Muns. F. and R.F.C. (M.C. gazetted September 26th, 1917).
Temp. Capt. F. G. Saunders, M.C., R.F.C. (M.C. gazetted June 4th, 1917).
Lieut. R. M. Smith, Aus. L.H., attd. Aus. F.C., M.C. (M.C. gazetted May 11th, 1917).

The Military Cross.

Temp. Lieut. R. A. George, Gen. List and R.F.C.
Temp. Lieut. G. E. Gibbs, R.F.C.
Temp. Capt. T. Gran, Gen. List and R.F.C.

Temp. 2nd Lieut. R. W. Hobbs, S.W. Bor., attd. R.F.C.
2nd Lieut. J. S. Jones, R.G.A. (S.R.), attd. R.F.C.
Temp. Capt. R. K. Kirkman, Gen. List and R.F.C.
Lieut. R. S. Larkin, R.F.C. (S.R.).
2nd Lieut. (Temp. Capt.) K. M. St. C. G. Leask, Devon and R.F.C.
2nd Lieut. G. E. H. McElroy, R.G.A. and R.F.C.
Temp. Capt. F. Nuttall, R.F.C.
2nd Lieut. T. L. Steele, Gen. List and R.F.C.
Temp. Capt. J. H. Tudhope, Gen. List and R.F.C.
Temp. 2nd Lieut. A. B. Whiteside, Gen. List and R.F.C.
Temp. Capt. H. T. O. Windsor, Gen. List and R.F.C.
Capt. R. N. Wolton, R.F.A. and R.F.C.
Temp. 2nd Lieut. A. J. Wright, Gen. List and R.F.C.

D.C.Ms. for the R.F.C.

It was announced in a supplement to the *London Gazette* on March 29th that the King has been pleased to award the Distinguished Conduct Medal to the following for gallantry and distinguished service in the field:—

1753 Flight Sergt. G. A. F. Gibson, R.F.C.
2015 Sergt. F. Hopper, R.F.C.
7756 1st Air-Mech. A. Leyland, R.F.C.



BOMBING THE "GOEBEN."

FROM a trustworthy source details have been received regarding the aerial operations carried out against the "Goeben" and "Breslau" from January 20th to January 29th. During this period 270 flights were made by our aircraft, about fifteen tons of bombs were dropped, and at least sixteen direct hits on the "Goeben" were recorded. Air patrols were sent out on January 20th as soon as news was received that the "Goeben" and "Breslau" were out, and as a result of the harrying action of our aircraft the "Breslau" forced to steer a zig-zag course, entered one of our minefields north-west of Rabbit Island, and struck a mine. Shortly afterwards she was hit by an aircraft bomb and sank.

The "Goeben" headed for the Dardanelles. Soon after this she struck one of our mines and developed a list to port of 15 deg. She thereupon altered course to port, and steered for the entrance to the Straits, at not more than ten knots. Aircraft continued to bomb her while she entered the Straits; her speed declined to "dead slow," and she ultimately ran aground at the point at Nagara Burnu. After the "Goeben" had been definitely located ashore at 10.30 a.m. on January 20th orders were sent for machines to be collected for a bombing raid at one p.m., and a special reconnaissance to report on the "Goeben's" position was carried out.

At dawn the following day a raid was made on the "Goeben" by five bombers. It was commenced in semi-darkness and the Narrows were obscured by clouds, so that the ten heavy bombs were dropped during anti-aircraft fire in the estimated position of the "Goeben," and no observation could be made. At midday a bombing raid commenced in which fourteen machines took part, going up at intervals of ten minutes. Shortly after six p.m., nine machines made a night raid. Four searchlights were observed, two coming from the "Goeben," which were immediately extinguished when the attack commenced. Continuous anti-aircraft fire was directed on the machines from shore batteries, and also from the "Goeben." Six heavy bombs were dropped on the "Goeben" from heights of 2,500 to 3,000 ft. The target was difficult to define, and while no claim to a direct hit can be made, certainly one explosion took place in close proximity to the two searchlights on the "Goeben," which seemed to be the reason for their immediate extinction. All the machines returned safely.

On the morning of the 22nd operations were again hindered by the dense mist; but about nine a.m. four machines made a raid, which was most successful, the machines returning without damage. One machine made a direct hit amidships,

and a volume of steam and smoke appeared directly afterwards from the ship. This observation was confirmed by the other machines, each of which had also released two bombs, which, although not making direct hits, fell very close on different sides of the ship. Three plates were exposed from which plans were prepared for observers, showing the exact position of the "Goeben." All the machines reported having seen a Turkish cruiser in the vicinity of the "Goeben." An R.F.C. flight also attacked the "Goeben" that afternoon, and later R.N.A.S. machines at 1.45 p.m. dropped eight bombs, which fell close to the "Goeben."

One pilot reached his objective after some difficulty, owing to poor visibility, and dropped his bombs on or near the ship from 4,000 ft., the results not being clearly visible. The anti-aircraft fire was intermittent and poor, the majority of the shells bursting beneath him. No searchlights were seen. He had to land midway between Lemnos and Imbros owing to engine trouble on changing petrol supply to rear tank. On gliding to the surface six shots were fired at his machine, apparently by a submarine, when at a height of approximately 600 ft. He was not molested, however, when on the water, and although Vêry lights were fired from the seaplane, and calcium flares dropped, he received no assistance during the night of the 22nd. At 5.30 a.m. on the 23rd a seaplane which had been sent out in search found the seaplane and towed her to the mouth of Mudros Harbour, where she was taken in tow by a destroyer and brought in undamaged.

On the morning of the 23rd four machines dropped two bombs on the "Goeben." All bombs dropped close, and two small boats pulling towards the ship were not seen again after the bombs dropped. A raid in the afternoon reported bombs dropped close around "Goeben." A further raid during the evening claims three direct hits on the "Goeben." The anti-aircraft batteries at Nagara Point, eight in number, were very active. Soon after dark on the 24th a raid was made by five machines piloted by the Royal Flying Corps and three bombers. They attacked the "Goeben" at intervals of ten minutes, and dropped twenty-two bombs. They made one direct hit. Early on the morning of the 27th a seaplane reconnoitred the Straits in adverse air conditions, and reported the "Goeben" still in position. On January 28th seaplanes reported that the "Goeben" had disappeared, and that there was no wreckage floating around the spot where she had been. A reconnaissance of the Constantinople area to locate her was made on Jan. 29th, and she was lying near the inner of the two bridges spanning the Golden Horn by the Arsenal, and stretching half-way along that bridge.



From Germany to Holland.

INCLUDED in the party of officers who arrived at Scheveningen from Germany for internment in Holland on March 24th were:—

Capt. D. Crosbie, R.F.C.
Lieut. C. A. Gladstone, attd. R.F.C.

Work of the French Naval Flyers.

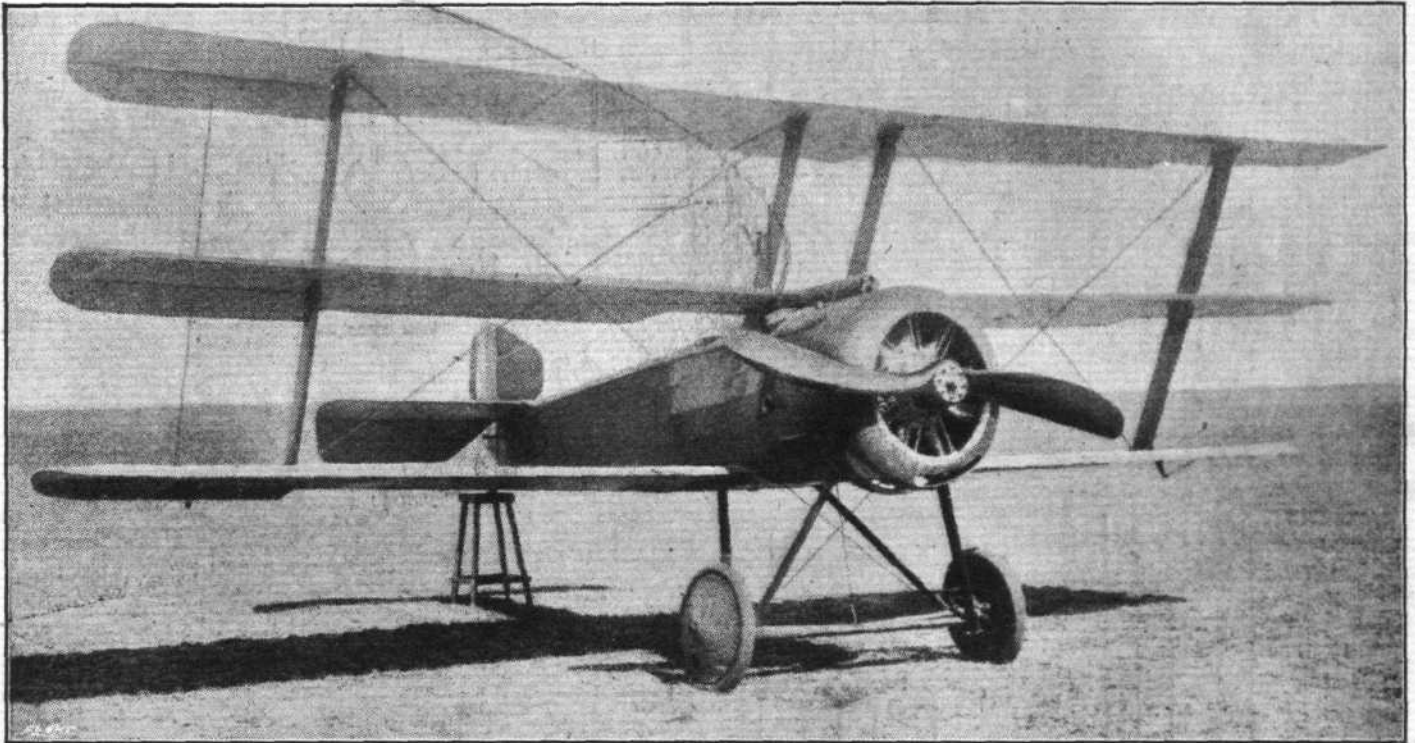
DURING February French naval aviation forces carried out more than 2,100 flights. Patrols and reconnaissances by airships amounted to about 200, and by captive balloons to 100. On several occasions mines were discovered or submarines successfully attacked.

THE SOPWITH TRIPLANE.

The following particulars of the Sopwith triplane are translated from German aeronautical journals, and we cannot, of course, vouch for the accuracy of the data given, nor can we, for obvious reasons, point out any mistakes that may be present. In spite of this, however, we have thought the following particulars of sufficient interest to include them in our series of descriptive articles on aeroplanes.—ED.]

IN *Deutsche Luftfahrer Zeitschrift* of August 22nd, 1917, Dipl. Ing. Roland Eisenlohr gives the following description of the Sopwith triplane: Among the new types of aeroplanes which the war has brought

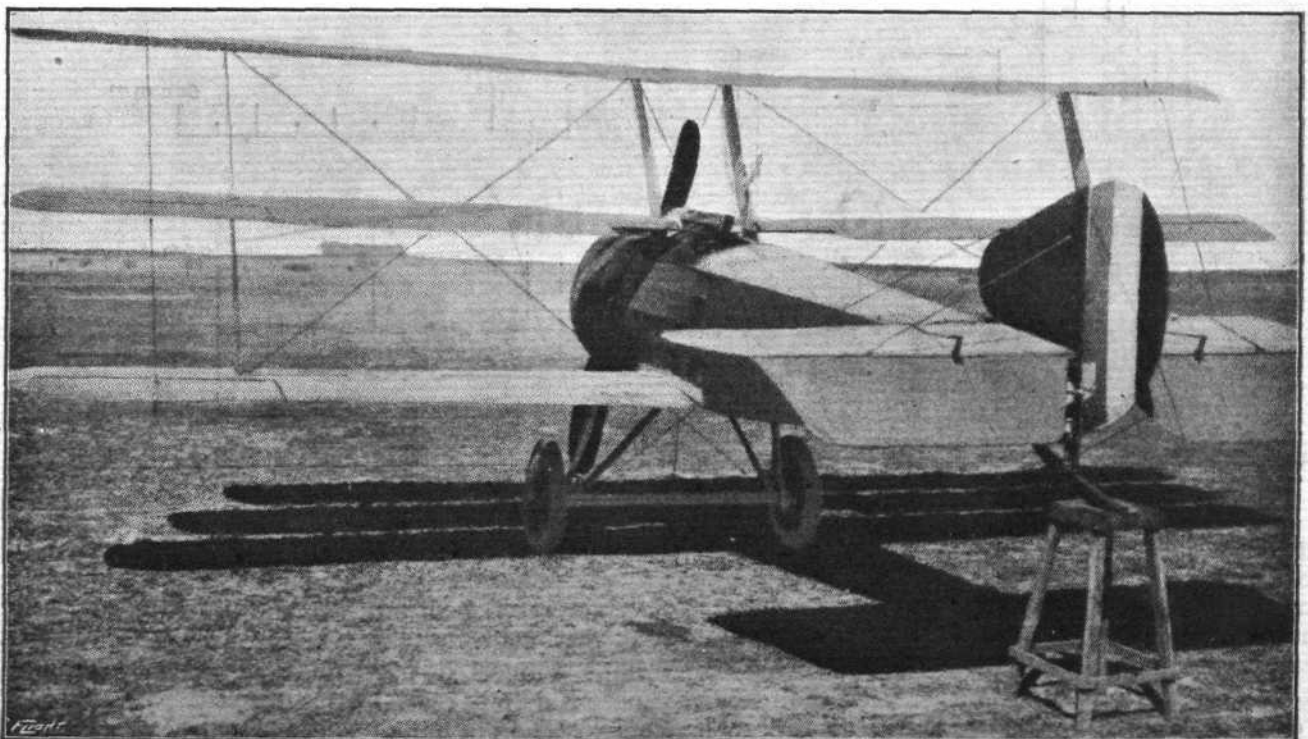
by Hans Grade in 1907, in England by A. V. Roe, and in France by Goupy, this form of construction had fallen into disuse, and no great future prospects were anticipated for this type of machine.



Three-quarter front view of the Sopwith triplane.

into being, the Sopwith occupies a unique position, as being the first triplane to be put into practical use. After some not very successful experiments in the earlier days of aviation, carried out in Germany

What probably has led to the return of this form of construction is probably the small span which it enables one to use. Another advantage of the triplane arrangement is that the aspect ratio, which



Rear view of the Sopwith triplane.

wing is about on a level with his eyes, and the upper and lower wings, on account of their small chord, do not obstruct the view to as great an extent as the wings of the ordinary smaller biplane having a greater wing chord. While both lift wires pass in front of the middle wing, the landing wire runs through it. The bracing cables for the body struts are crossed in the case of those running forward to the nose of



Scale drawings of the Sopwith triplane.

the machine, while those bracing the struts in a rearward direction are straight. The gap between the wings is 90 centimetres, and the stagger is about 25 per cent. All the wings are fitted with wing flaps connected by a vertical steel band. In the nose the body carries a 110 h.p. Clerget rotary motor, enclosed in a circular cowl, which projects below the body in order to allow the air to escape.

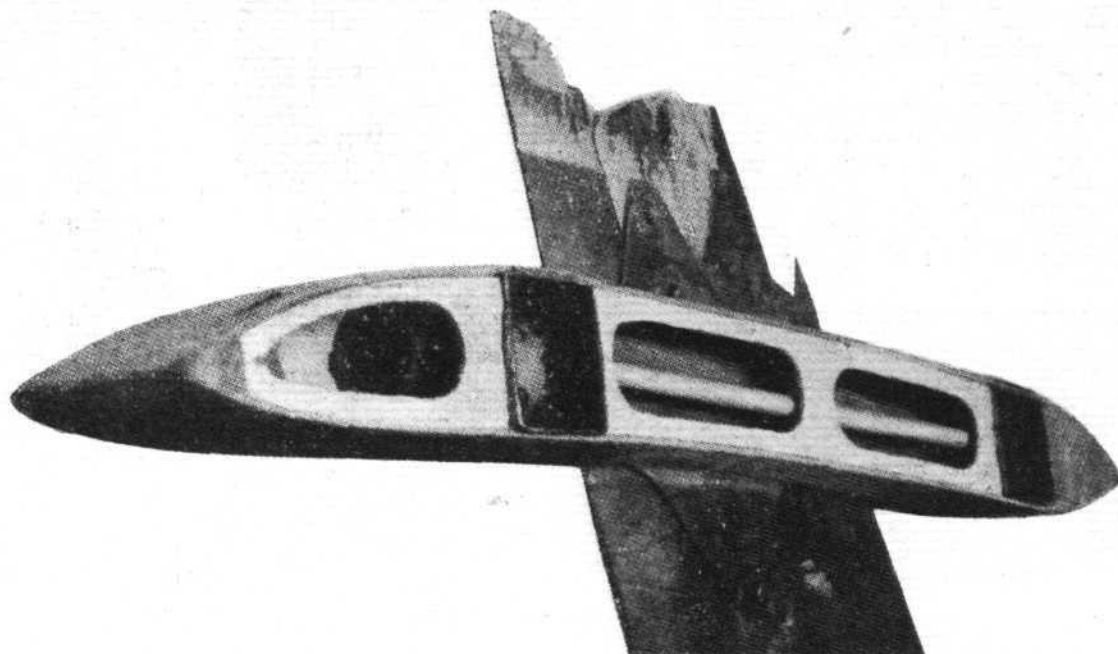
The body is of rectangular section, rounded off

in front by means of a light wooden framework in order to make it merge into the curve of the engine cowl. The width of the *fuselage* is 0.70 m., and it tapers to a vertical knife-edge at the back, to which the rudder is hinged. The elevator is in two parts, and has in front of it a tail plane of about 3 metre span, which, as in all Sopwith machines, can have its angle of incidence adjusted during flight.

machines, of two V's of steel tubing and a divided wheel axle, the hinge of which is braced from the *fuselage*.

The following remarks are taken from the *Flugsport* :—

The *fuselage* with tail plane and rudder is the same as that of the small Sopwith single-seater biplanes. The three wings have a span of 8.07 m. and a chord

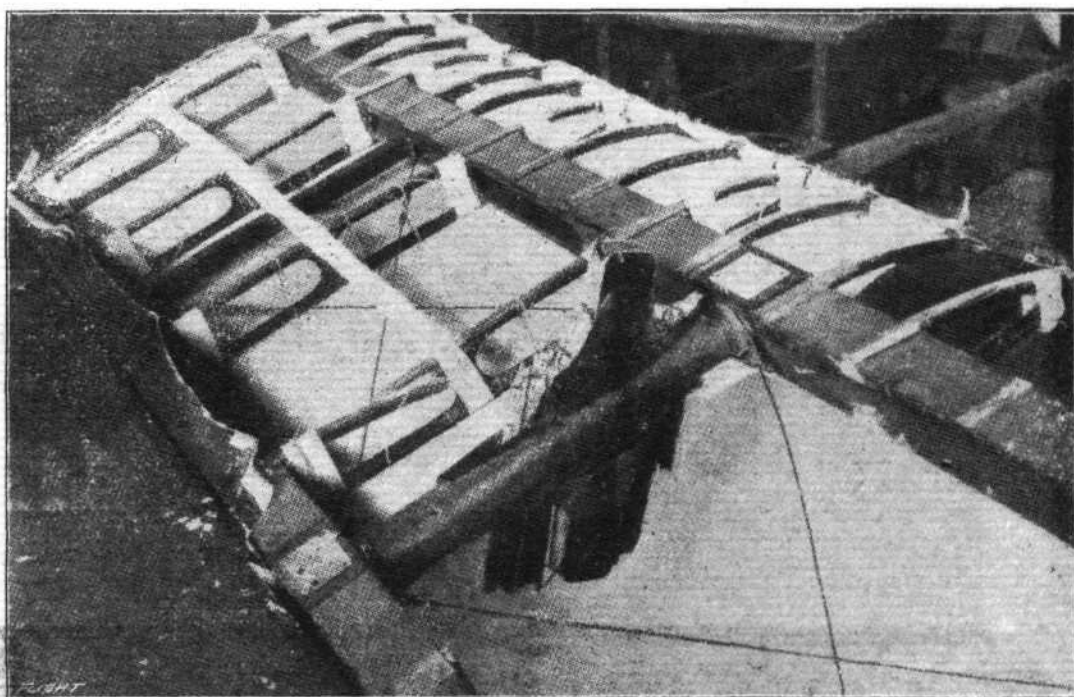


Attachment of middle wing to body strut on the Sopwith triplane.

The area of the Sopwith triplane is 27 square metres, so that for a total weight of 670 kilogs. the wing loading is only 25 kilogs. per square metre. With such a light loading the machine has undoubtedly a considerable speed and a very good climb. Further

of 1 m. The lower and middle wings are attached to short wing sections on the *fuselage*. The upper plane is mounted on a canopy [the German term for a small centre section supported by struts from the body—Ed.]. Both spars of the upper wing are left

Interplane strut attachment to middle wing of Sopwith triplane.



particulars relating to these have not yet been published up to the present. The triplane is built both as a single-seater and as a two-seater, and has always a fixed machine-gun in front above the *fuselage*, and in the case of the two-seater another machine-gun operated by the observer. This increases the weight of the two-seater by about 100 kilogs.

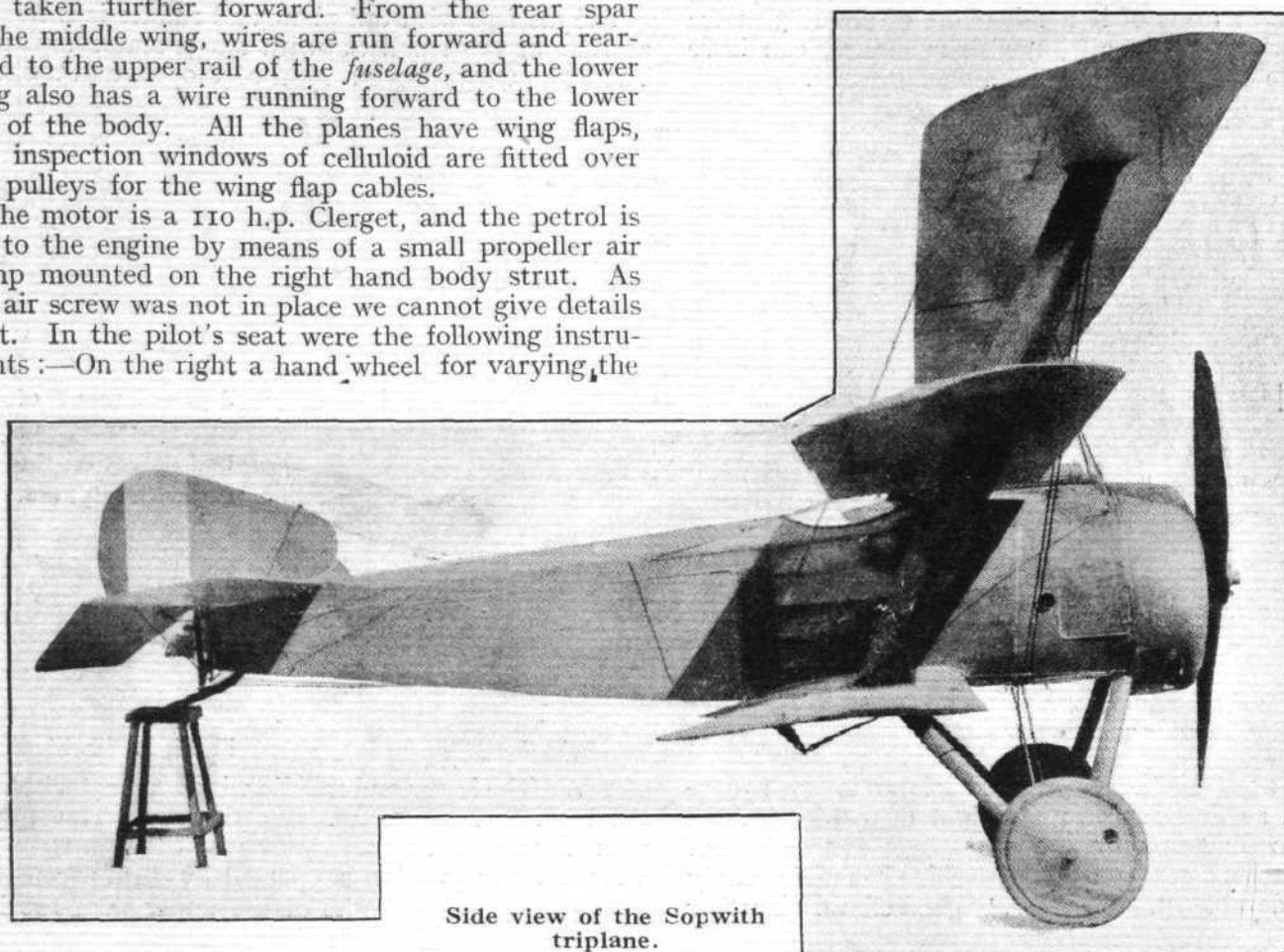
The under-carriage consists, as in all Sopwith

solid, while those of the lower and middle are of I-section. The interplane struts, which are of spruce, and of streamline section, run from the upper to the lower wing, and the inner ones from the upper wing to the bottom rail of the *fuselage*. In order to give a better view the middle wing, which is on a level with the pilot's eyes, is cut away near the *fuselage*.

The wing bracing is in the form of streamline wires of $\frac{1}{4}$ -in. diameter. The very simply arranged landing wires are in the plane of the struts, while the bracing of the body struts, as well as the duplicate lift wires, are taken further forward. From the rear spar of the middle wing, wires are run forward and rearward to the upper rail of the fuselage, and the lower wing also has a wire running forward to the lower rail of the body. All the planes have wing flaps, and inspection windows of celluloid are fitted over the pulleys for the wing flap cables.

The motor is a 110 h.p. Clerget, and the petrol is led to the engine by means of a small propeller air pump mounted on the right hand body strut. As the air screw was not in place we cannot give details of it. In the pilot's seat were the following instruments:—On the right a hand wheel for varying the

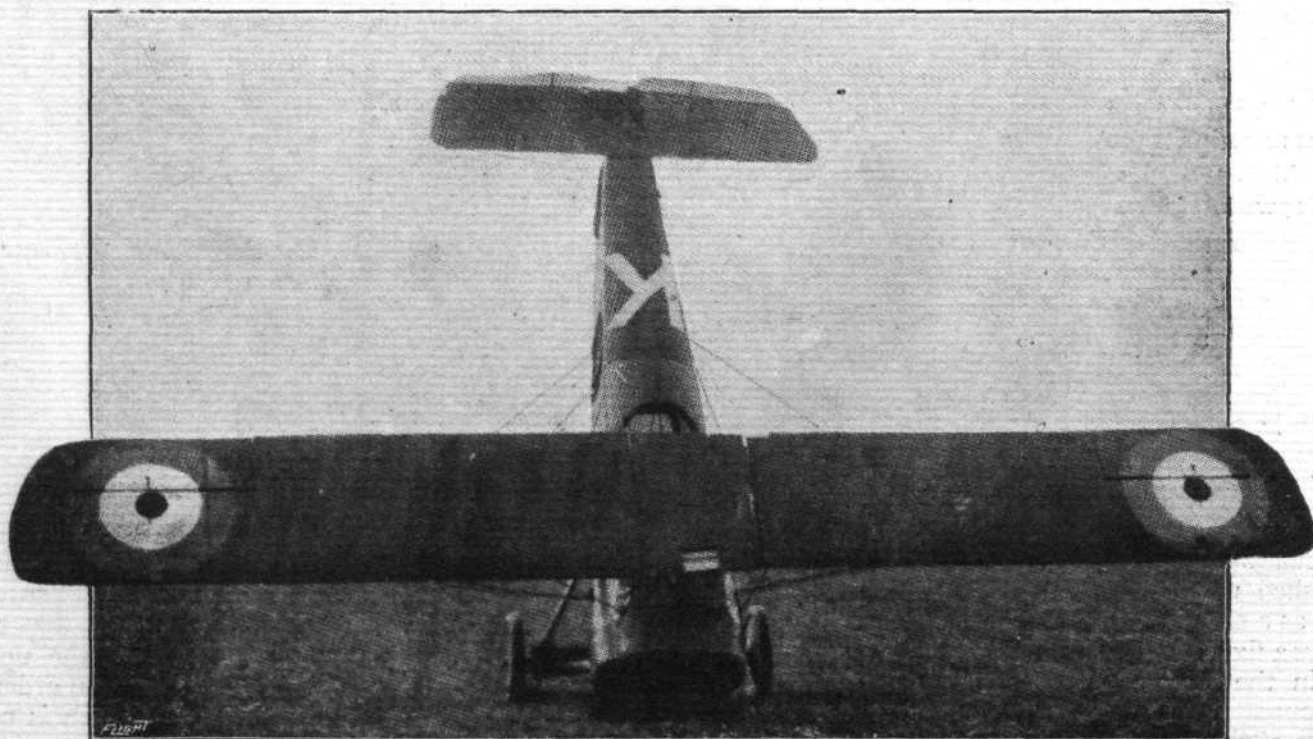
regulating the air, and lever for regulating the petrol. The weight of the machine empty was found to be 490 kilogs., and if the useful load is assumed



Side view of the Sopwith triplane.

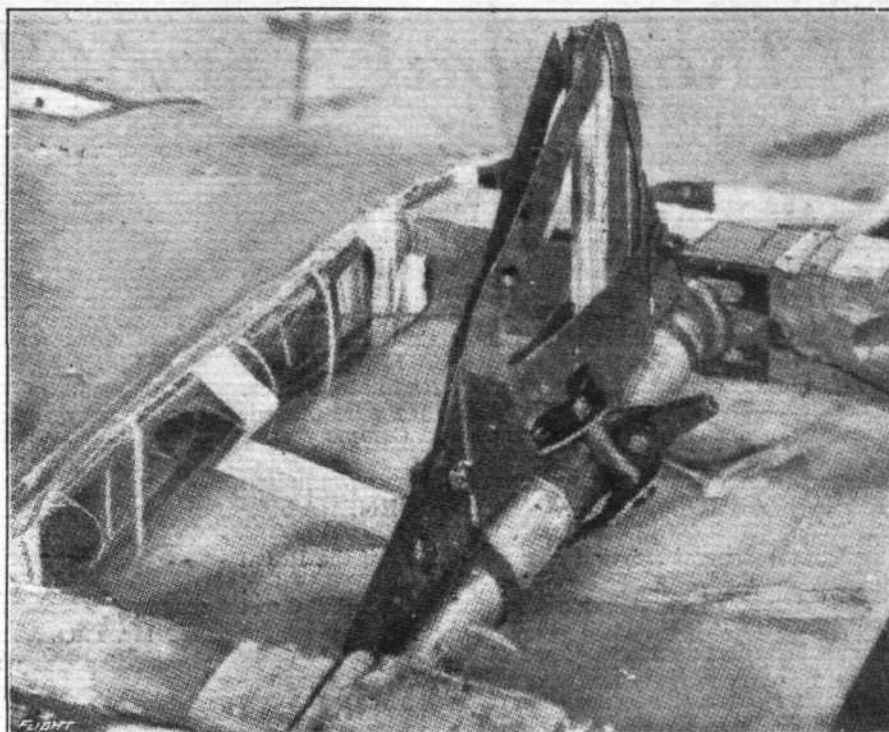
angle of incidence of the tail planes, a hand operated air pump, and a petrol indicator. In the middle air speed indicator, manometer, clock, revs. indicator, and switch. On the left a petrol tap, lever for

to be 200 kilogs., we obtain a total weight of 690 kilogs., which, with an area of 21.96 sq. metres, would give a loading of 31.4 kilogs. per square metre.

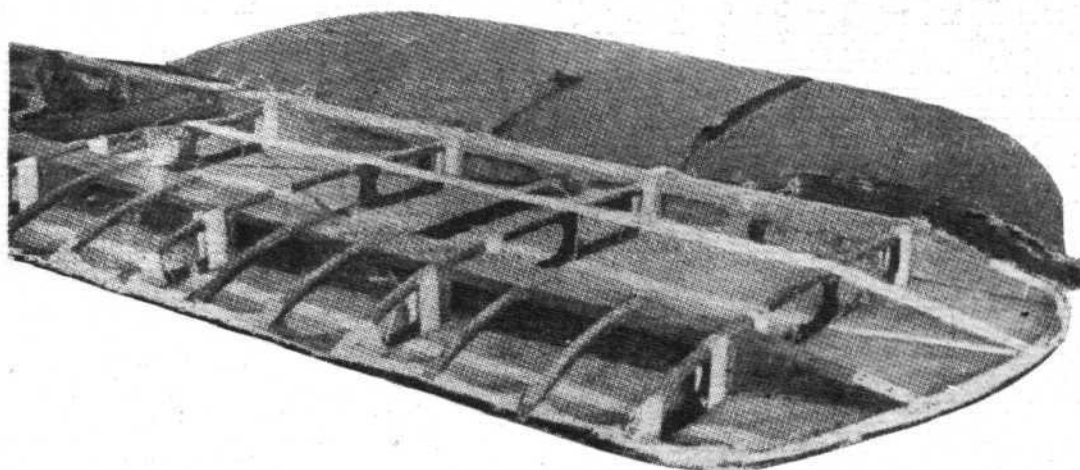


THE END OF THE JOURNEY.—A Sopwith triplane in the hands of the enemy.

Attachment of interplane
strut to lower wing on
the Sopwith triplane



Middle wing of
the Sopwith
triplane.



Further, the following particulars are given:—
Motor: Clerget, nominal h.p. 110, brake h.p. 118;
fuel capacity for two hours, petrol 85 litres, oil
23 litres; area of wings and flaps (square metres),
upper 7.90, middle 6.96, lower 7.10, total 21.96;
area of elevators 6 by .5, of wing flaps 1.10, of rudder
.41. Angle of incidence (degrees): upper wing,
root + 1, tip — .8; middle, root + 1.5, tip + 1.5;
lower, root + .5, tip — .5; tail plane, variable + 2
to — 2 degrees. Loading per sq. metre, empty 22.3,
fully loaded 31.4; loading per brake h.p., empty 4.15,
fully loaded 5.85.

Weights.

<i>Fuselage with under-carriage and accessories</i>	123.5 kilogs.
Wings	135 "
Tail plane, rudder and elevator	13 "
Engine	160 "
Petrol tank	15 "
Oil tank	8.5 "
Propeller	16 "
Engine accessories	16 "
Mounting	3 "
	490 "
Pilot	80 "
Gun and ammunition	40 "
85 litres of petrol and 23 litres of oil	80 "
	200 "

One Against Five.

SOME details are available regarding an exciting fight between one of our patrolling seaplanes and five enemy machines. The seaplane was one of two which had left an East Coast base on patrol duty. While the other machine was flying some distance ahead five enemy seaplanes—two twin-seaters and three single-seaters—dived out of the clouds at the rearmost machine. The three single-seaters closed in behind the tail of our seaplane and opened fire at between 200 and 300 yards, hitting our machine frequently. The British seaplane kept up a running fight, and, by steering a zig-zag course, enabled the engineer and the wireless operator to bring the rear guns to bear. The engineer succeeded in hitting one single-seater, causing it to side-slip and crash into the water. The enemy two-seaters circled round the crashed machine, while the remaining two single-seaters kept fighting for another five minutes and then turned back.

The action of the crew of our seaplane has been brought to the notice of the Admiralty, and the Distinguished Service Medal has been awarded to the gunner, Air-Mech. 2nd Class (E) J. H. Robinson, for the skill and coolness displayed by him on this occasion.

A Raid on Paris.

AN official report, issued in Paris on April 2nd, stated: "During the night two groups of German aeroplanes crossed our lines flying in the direction of Paris. They were immediately signalled by our watching posts, and at three minutes past three this morning the alarm was given.

"The defence batteries opened violent fire against the enemy aeroplanes, which were compelled to turn back.

"A few bombs are reported to have been dropped on the outskirts of the city, but they did not get any victims, and the damage is of little importance. The "all clear" was given at twenty minutes past four."

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

AERO PROPRIETARY, LIMITED.

THE Sixteenth Annual General Meeting of the Shareholders of Aero Proprietary, Limited, was held at 3, Clifford Street, W., on Wednesday, the 27th March, 1918, at 5.30 p.m., when there were present:—Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S., in the Chair, Mr. Ernest C. Bucknall, Mr. F. Hedges Butler and Mr. Stanley Spooner. Mr. F. Harold Sully and Lieut.-Com. H. E. Perrin, R.N.V.R., in attendance.

Accounts.—The accounts for the year 1917 were passed.
Auditors.—Messrs. Andrew W. Barr and Company were elected auditors.

ROYAL AERO CLUB ANNUAL GENERAL MEETING.

The Annual General Meeting of the Members of the Royal Aero Club was held at 3, Clifford Street, W., on Wednesday, the 27th March, 1918, at 6 o'clock. Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S., took the Chair, supported by the following Members:—Squad.-Com. Gerald W. S. Aldwell, R.N., Capt. G. W. G. Brown, Mr. Ernest C. Bucknall, Squad.-Com. E. T. Newton-Claire, Surgeon H. J. Corin, R.N.V.R., Capt. G. E. Falkner, Mr. Chester Fox, Mr. Charles L. Freeston, Lieut. A. W. Furbank, Mr. Bernard Isaac, Lieut. H. M. Jullerot, R.N.V.R., Mr. Henry Knox, Fleet Paymaster Frank Leun, R.N., Mr. J. Stewart Mallam, Mr. Pierre Maréchal, Mr. Gavin W. Ralston, Mr. Stanley Spooner, Mr. F. Harold Sully, Mr. Douglas W. Thorburn, Lieut. E. Aldhelm-White, and Lieut.-Com. H. E. Perrin, R.N.V.R., in attendance.

Election of Vice-President and Council.—On the motion of Mr. Gavin W. Ralston, seconded by Mr. C. L. Freeston, the Vice-President and Council for the ensuing year were elected as follows:—

Vice-President.

The Rt. Hon. Lord Northcliffe.

Council.

S.A.I. Prince Roland Bonaparte (President F.A.I.).
The Rt. Hon. The Earl of Hardwicke.
The Rt. Hon. The Earl of Lonsdale.
The Rt. Hon. Lord Howard de Walden.
The Rt. Hon. Lord Kinnaid, F.R.G.S.
Lieut.-Col. The Rt. Hon. Lord Montagu of Beaulieu.
Admiral of the Fleet the Rt. Hon. Sir Edward Seymour, P.C., G.C.B., O.M., G.C.V.O.
Admiral The Hon. Sir Edmund Freemantle, G.C.B., C.M.G.
Count Henry de la Vaulx (Vice-President, Aero Club de France).
Sir David Salomons, Bart.
Sir Norman Lockyer, K.C.B., F.R.S.

The King and the Royal Air Force.

THE King marked the occasion of the formal fusion of the R.N.A.S. and the R.F.C. into the unified Royal Air Force on April 1st by sending the following telegram to Lord Rothermere, the Secretary of State for the Air Force:—

"To-day the Royal Air Force, of which you are the Minister in charge, comes into existence as a third arm of the defences of the Empire. As General-in-Chief I congratulate you on its birth, and I trust that it may enjoy a vigorous and successful life."

"I am confident that the union of the Royal Naval Air Service and the Royal Flying Corps will preserve and foster that *esprit de corps* which these two separate forces have created by their splendid deeds."

"GEORGE R.I."

Lord Rothermere replied as follows:—

"Lord Rothermere, with his humble duty to your Majesty, begs leave on behalf of the Royal Air Force to convey an expression of their heartfelt appreciation of the gracious message addressed to them by their General-in-Chief. Lord Rothermere is confident that the assurance of your Majesty's interest and confidence will assist every officer and man in the Royal Air Force in the task of continuing the great traditions of the Royal Naval Air Service and the Royal Flying Corps—traditions which, as your Majesty has personally seen, have never been more gloriously maintained than in the struggle now proceeding."

Professor Sir William Crookes, O.M., F.R.S.
The Rt. Rev. Bishop Welldon.

Professor A. K. Huntington.
Henry Deutsch de la Meurthe (President, Aero Club de France).
Martin Dale.

Committee.

The result of the ballot for the nine vacancies on the Committee was declared as follows:—

Brig.-Gen. The Duke of Atholl, M.V.O., D.S.O.
Maj.-Gen. W. S. Brancker, R.F.A.
Mr. Ernest C. Bucknall.
Mr. G. B. Cockburn.
Lieut.-Col. F. Lindsay Lloyd.
Major J. T. C. Moore-Brabazon, R.F.C.
Wing-Capt. C. R. Samson, R.N., D.S.O.
Mr. A. Mortimer Singer.
Mr. T. O. M. Sopwith.

The Chairman referred to the magnificent exploits and triumphant success of the Flying Services at the front. He instanced the growth of the Air Services, the personnel of which in 1914 was 2,500, and in the summer of 1917 had increased to 125,000, and had still further increased. From this they would realise the enormous importance of the Air Services to the Country.

The New Club House had justified its existence. The attendance of Members was satisfactory, and it had proved a great boon to those Members of the Services home on leave.

The Club had unfortunately suffered severely from loss of Members on Service, but new Members had come in to fill up the gaps. It was quite possible that in the near future the present accommodation would prove inadequate.

The Flying Services Fund had received during the year £1,826 10s. 1d., and had paid away in Grants and Allowances £928 10s. There was a balance in hand of £11,343 9s. 8d. The Chairman wished to take this opportunity of expressing the thanks of the Members to the Committee who had dealt with the Fund during the year.

At the close of the Meeting it was unanimously resolved to send the following telegram to General Salmond, Commanding the Royal Flying Corps, in France:—

"Members of Royal Aero Club at General Meeting held to-day send warmest congratulations on magnificent exploits and triumphant success of Flying Services."
General Sir CAPEL HOLDEN,

Chairman."

A vote of thanks to the Chairman concluded the meeting.

H. E. PERRIN, Secretary.

3, Clifford Street, New Bond Street, W.1.

The King and the Air Services.

THE King sent the following telegram to Sir Douglas Haig on March 27th:—

"I wish to express to General Salmond and all ranks of the Air Services of the British Empire in France my gratification at their splendid achievements during this great battle. I am proud to be their Colonel-in-Chief.—GEORGE R.I."

The following special Order of the Day, dated March 27th, has been issued:—

"To His Majesty the King, Buckingham Palace, from Field-Marshal Sir Douglas Haig.

"General Salmond and all ranks of the British Air Service in France desire to express their most loyal and heartfelt thanks for your Majesty's most gracious message. They are specially proud to think that they are rendering good service to their King and Empire at this critical period of the war, and the knowledge that they have won the appreciation of their Colonel-in-Chief inspires them to still greater efforts."

Welcome to Brazilian Aviators.

IN the message from the King to the Brazilian President welcoming the coming of the Brazilian Fleet his Majesty says: "The British Navy looks forward with profound satisfaction to the co-operation of Brazilian warships, and Brazilian air-men are receiving an enthusiastic welcome from the Royal Air Force."

THE ROLL OF HONOUR.

REPORTED by the Admiralty:—

Accidentally Killed.

Prob. Flight Officer A. V. Jones, R.N.

Died of Injuries.

Flight Lieut. L. E. B. Wimbush, R.N.

Seriously Wounded.

Flight Sub-Lieut. F. E. A. Bambridge, R.N.

Slightly Wounded.

Flight Lieut. W. H. Chisam, R.N.

Flight Lieut. J. A. Glen, R.N.

Accidentally Injured.

Flight Sub-Lieut. A. W. Archer, R.N.

Prob. Flight Officer E. G. Grier, R.N.

Prob. Flight Officer G. V. Ley, R.N.

Prob. Flight Officer H. J. McLeod, R.N.

Flight Sub-Lieut. S. Quayle, R.N.

Mr. A. H. Simmons, Warrant Officer, II Grade, R.N.A.S.

Prob. Flight Officer A. H. Thomas, R.N.

Missing (believed Killed).

Flight Commander F. C. Armstrong, D.S.C., R.N.

Previously Missing (believed Prisoners), now reported Prisoners.

Flight Commander T. R. Hackman, R.N.

Obsr. Lieut. T. H. Piper, R.N.

Missing.

Flight Sub-Lieut. W. A. Moyle, R.N.

Flight Lieut. L. A. Sands, R.N.

Reported by the War Office:—

Killed.

2nd Lieut. B. K. Adams, R.F.C.

2nd Lieut. H. H. Hartley, R.F.C.

2nd Lieut. H. R. Jones, R.F.C.

Lieut. O. G. Tancock, M.C., R.F.A., attd. R.F.C.

2nd Lieut. A. Warren, Leic. Regt., attd. R.F.C.

2nd Lieut. G. C. Young, R.F.C.

43573 2nd Air-Mech. T. Brooke, R.F.C.

51227 3rd Air-Mech. P. McBrearty, R.F.C.

Previously Missing, now reported Killed.

Lieut. J. P. Dalley, I.A.R.O., attd. R.F.C.

2nd Lieut. W. Davidson, R.F.C.

Lieut. H. B. New, Essex R., attd. R.F.C.

Lieut. T. S. Roadley, N. Staff. R., attd. R.F.C.

Died of Wounds.

2nd Lieut. F. J. McConnell, R.F.C.

2nd Lieut. G. O. McDonell, R.G.A., attd. R.F.C.

Previously reported Prisoner, now reported
Died of Wounds as Prisoner in German hands.
2nd Lieut. J. H. Young, Lond. R., attd. R.F.C.

Accidentally Killed.

2nd Lieut. H. Curtis-Beals, R.F.C.

2nd Lieut. A. P. Dale, R.F.C.

Lieut. C. D. Sinclair, E. Ont. R., attd. R.F.C.

Died.

1130 A. Morgan, R.F.C.

77983 2nd Air-Mech. J. H. Renshaw, R.F.C.

Wounded.

Lieut. S. H. Kerr, E. Ont. R., attd. R.F.C.

Capt. O. E. Ridewood, A.S.C., attd. R.F.C.

Lieut. G. W. Taylor, Can. Cav., attd. R.F.C.

26621 1st Air-Mech. A. Hillier, R.F.C.

113877 3rd Air-Mech. J. Hynes, R.F.C.

2nd Lieut. F. H. Robinson, R.F.C.

2nd Lieut. W. C. Venmore, London, attd. R.F.C.

3116 Sergt. W. E. Smith, D.C.M., R.F.C.

Previously reported Prisoner, now reported Wounded and Prisoner in German hands.

Lieut. K. S. Morrison, R.F.A., attd. R.F.C.

Missing.

2nd Lieut. R. B. Brookes, R.F.C.

2nd Lieut. L. Cann, R.F.C.

2nd Lieut. C. Gavaghan, R.F.C.

Lieut. N. Clark, R.F.A., attd. R.F.C.

2nd Lieut. H. F. Gaynor, Lond. R., attd. R.F.C.

Lieut. E. E. Heath, Cent. Ont. R., attd. R.F.C.

2nd Lieut. J. L. Holt, R.F.C.

2nd Lieut. W. G. Ivamy, R.F.C.

Lieut. K. J. Knaggs, R. War. R., attd. R.F.C.

2nd Lieut. E. B. Lee, R.F.C.

Capt. F. L. Luxmoore, R.F.C.

2nd Lieut. J. A. McCudden, M.C., R.F.C.

Lieut. A. W. Matson, R.F.C.

2nd Lieut. R. A. Mayne, R.F.C.

2nd Lieut. R. E. Neale, R.F.C.

2nd Lieut. H. A. Payne, R.F.C.

2nd Lieut. G. Russell, R.F.C.

Lieut. V. W. Scott, E. Surr. R., attd. R.F.C.

2nd Lieut. C. V. Shakesby, E. Yorks. Regt., attd. R.F.C.

2nd Lieut. T. G. Shaw, R.F.C.

Capt. St. C. C. Taylor, M.C., R. Suss. Regt., attd. R.F.C.

2nd Lieut. A. L. T. Taylor, R.F.C.

2nd Lieut. W. H. Taylor, R.F.C.

2nd Lieut. T. S. Wilson, R.F.C.

27194 Sergt. A. Hughesden, R.F.C.

114348 2nd Air-Mech. R. Ireland, R.F.C.



IN THE HANDS OF THE ENEMY.

THE following is an official list, published in Germany, of British machines which the Germans claim fell into their hands during the month of January, 1918:—

13 Sopwiths.

Single-seaters.

No. B. 9131, Lieut. E. S. Davenport, dead.

No. C. 5334, Capt. Selvus, dead.

No. 2413, Lieut. Harry Rob. Russel, wounded.

No. B. 9163, Lieut. Legart, prisoner.

No. B. 6426, Lieut. Dohgeardty, wounded.

No. S.G.D. 2055, occupant dead.

Motor Ruston-Procter & Co., Lincoln, Lt. Timmis, prisoner.

No. V. 2-8770, N.E. Lieut. Maybery, dead.

No. B. 6267, occupant, a captain, prisoner.

No. unknown, Lieut. H. A. Dyer, dead.

In the case of three Sopwith single-seaters numbers of machines and names of occupants could not be ascertained.

11 Sopwith Camels.

No. B. 6201, Lieut. A. L. Kidd, prisoner.

No. C. 1753, Lieut. Stewart, prisoner.

No. B. 5658, Lieut. F. Booth, dead.

No. 6351, Lieut. Beattie, unwounded.

No. B. 6278, Lieut. A. J. Dixon, dead.

No. B. 5602, Lieut. B. F. Willmott, prisoner.

No. 5423, F. M. Ohrt (American), prisoner.

No. B. 6208, Lieut. Madely, dead.

No. B. 7184, Lieut. Yonens, dead.

In the case of 2 Sopwith Camels the numbers of the machines and the names of the occupants could not be ascertained.

7 Bristols.

No. B. 1542, Lieut. A. W. Westlake, dead. Name of the Non-Com. Officer unknown.

No. 3187, Capt. A. Field, dead; Lieut. W. S. Smith, dead.
No. 288, Corp. Paterson, dead.

In the case of 4 Bristols the numbers of the machines and the names of the occupants could not be ascertained.

3 R.E. 8's.

No. could not be ascertained; one occupant dead, one wounded.

No. unknown, both occupants dead.

No. could not be ascertained, both occupants prisoners.

2 Nieuports.

No. 5539, Lieut. E. K. Skelton, dead.

No. 3667, Lieut. Ralph (Christian name?), dead.

2 de H. 5's.

No. A. 7424, Capt. E. E. Pope, Lieut. A. F. Wynne, both prisoners.

No. A. 9201, Lieut. Merediths, dead.

1 Armstrong-Whitworth two-seater.

No. A. 2879, both occupants prisoners.

1 B.E. two-seater.

No. A. 7174, Lieut. H. V. Biddington, Lieut. J. H. Corbet, both prisoners.

1 S.E. 5 single-seater.

No. 5329, Lieut. H. E. Davis, prisoner.

1 Spad two-seater.

The number of the machine and the names of the occupants could not be ascertained.

1 single-seater, Type unknown.

Lieut. Baker, dead.

2 machines of unknown type.

AN ALBATROS FIGHTING BIPLANE.

(Continued from page 336.)

IN our last issue the general construction of the wings of the Albatros was dealt with, and we intend to supplement the information then given in our present issue with some of the more interesting constructional details of the wings. Fig. 26 shows some details of the upper left-hand wing near the tip, and also the general arrangement of one of the *ailerons*. As will be gathered from the sketch at the top of Fig. 26, the wing flaps are built up of steel tubing throughout, and each *aileron* is balanced by a forward projection, not, as in the Gothas, outside the tip of the main wing, but working in an opening in the main plane. As in nearly all German machines, the *aileron* is not hinged to the rear main spar, but to a third false spar situated between the rear main spar and the trailing edge. The method of hinging the *aileron* will be clear from the detail section and elevation at A. A steel clip is bent over the tube of the *aileron* and has its forward ends bent into grooves in wood blocks on the front face of the spar, much in the same manner as was employed in the

case of the elevator hinge and described when dealing with that member. As in the case of the elevator the fabric covering of the wing flaps is attached to wood blocks screwed to the tube.

The crank lever for operating the wing flap is in the form of an elliptical section tube tapering towards its ends. Each half of this crank lever carries three wiring clips, as shown at B. It will be seen that by providing three clips on each end instead of one, a means for varying the gearing of the wing flap control is furnished. If a pilot wishes the machine to be fairly sensitive on the lateral control he will naturally attach his wing flap cables to the inner clips, since thereby a movement of the control lever will result in a larger movement of the wing flap. On the other hand, if he prefers to have a large movement on his control lever without too great corresponding angularity of his wing flaps or *ailerons*, he will attach his cables to the outer clips, as this will result in a "gearing down" of the wing flap.

The forward end of the wing flap crank lever works

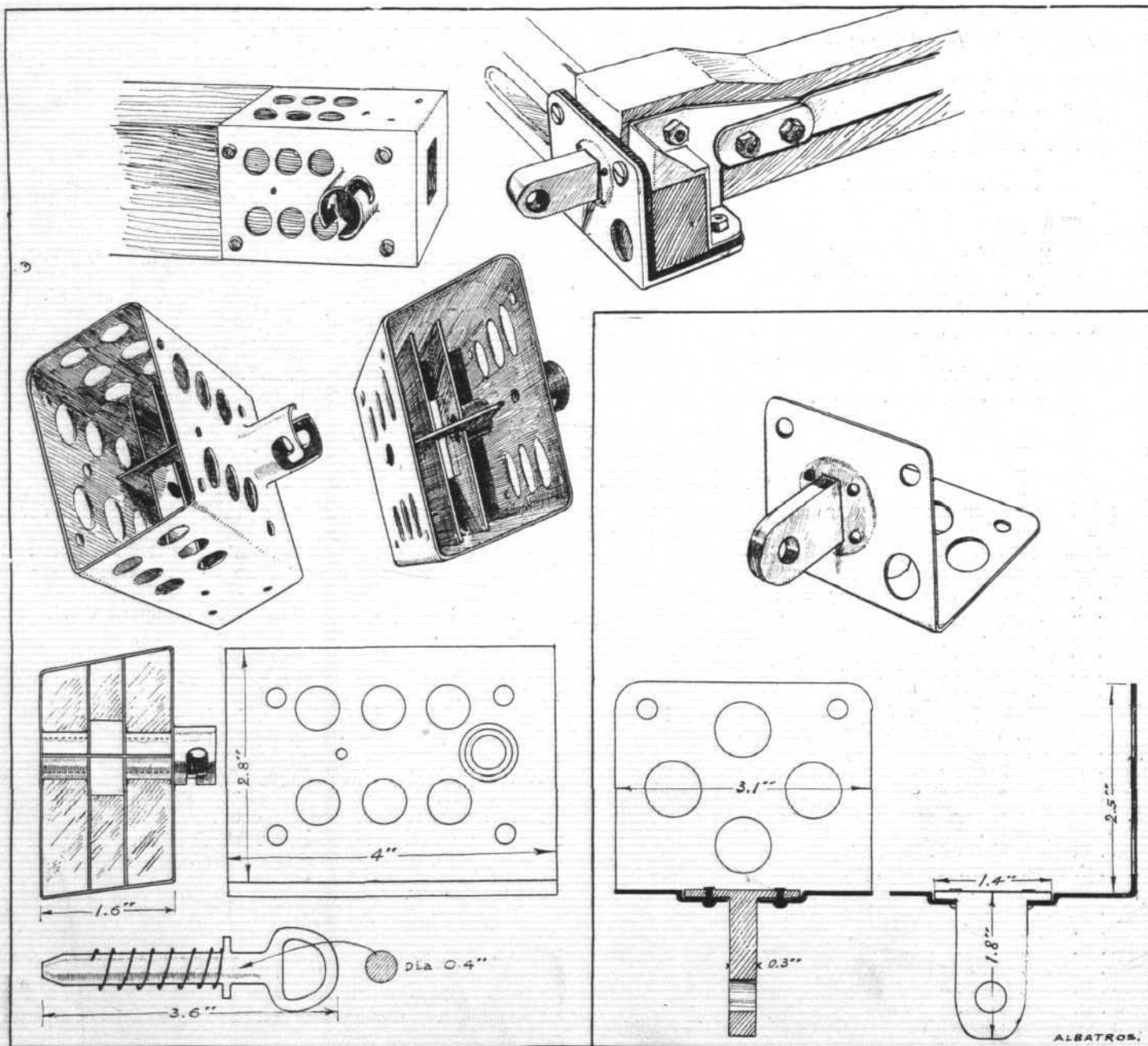


Fig. 25.—The spar box and its attachment to the fuselage of the Albatros fighting biplane.

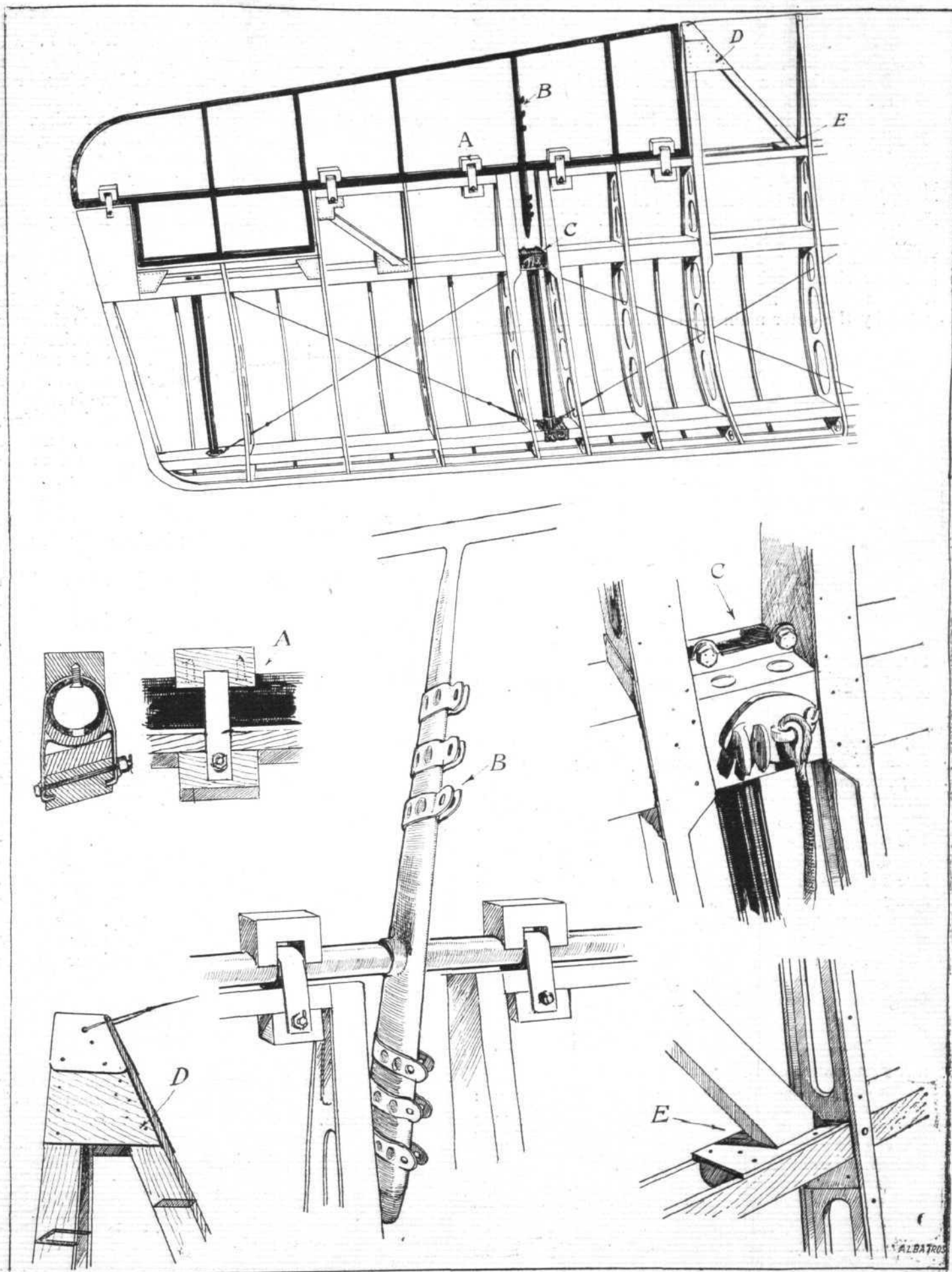


Fig. 26.—The wing flap and some wing details of the Albatros fighting biplane.

in a slot between two closely spaced ribs, as shown in the sketches. At this point the ribs are strengthened by making them of the box type for their rear portion, and the ash flanges of the ribs are left wider over this portion, while being reduced to their normal width from the rear spar forwards, as indicated in the sketch. At this point also occurs the strut and lift cable attachment. This strut being the last, there is only one cable instead of the two occurring where the inner struts are attached, otherwise the attachment is similar in principle to that illustrated last week. The spar box and strut and cable attachment is indicated in the detail sketch at C. The tubular compression strut is secured in the same manner as that of the fitting previously referred to.

As previously pointed out, the trailing edge of the Albatros wings is in the form of a wire, and the method whereby the outer main rib is prevented from bend-

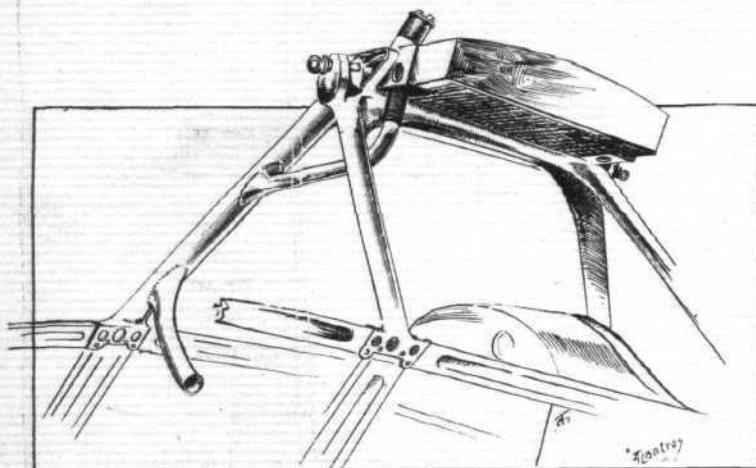


Fig. 27.—The cabane supporting the radiator and upper plane of the Albatros biplane. Note the manner of carrying the water tube through one of the cabane legs.

ing sideways is illustrated in the detail sketches at D and E. In addition to the wire forming the trailing edge, there is another wire running parallel to it and carried right through the wings, the object of which appears to be to provide a counterpoise capacity. The wiring in the Albatros is not extensive, and in the case of the fuselage it is absent altogether, and it therefore appears probable that the thin cables running along the wings and the longerons of the fuselage serve the purpose of providing the necessary amount of wiring, otherwise one is at a loss to account for their function.

It has always been customary for German aeroplane designers to provide some easy means for quickly

detaching the wings from the body, and the present Albatros is no exception from the rule in this respect. The cables themselves are not, it is true, fitted with the quick release devices one finds on the L.V.G., for instance, but the spar attachment has been designed to facilitate the removal of the wing; even if that of the cables has not. In Fig. 25 is shown the spar box and its attachment of the lower wing. A sheet steel box surrounds the root of the spar, and has in its end a slot into which fits the lug secured to the side of the body. This spar box is ribbed internally as shown in the sketches, and the spar itself has in its end saw cuts accommodating these ribs.

Welded to the side of the spar box is a socket forming a bayonet joint, into which fits a pin fitted with a small spiral spring. The spar is held against the side of the body with the lug projecting into the spar box, and the pin is inserted and given a twist so as to bring the projections on the pin into the notches in the bayonet joint, and the spar is secured. For removing the wing all that has to be done is to press the pin slightly against the action of the spiral spring, give it a twist and pull it out of its socket, and the spar can be withdrawn. The spar is secured to the spar box by screws, and the box is further secured against tensional loads by a steel strip about a foot long running along the face of the spar and anchored at its other end by a bolt passing horizontally through the spar.

As the lower wing spars are subject, in addition to the bending moment owing to the lateral load on them, to tension, the attachment to the body has to be such that it will resist a tensional load as well. The method of doing this is shown in the right-hand sketches in Fig. 25. The lug to which the spar is attached fits into a recess in the base plate formed by stamping. The axial pull is transmitted across the bottom of the fuselage via the brackets and strips shown, which are bolted to the base plate holding the lug. In order to prevent the lug from turning it is riveted by four rivets as indicated.

The upper planes are attached, as in nearly all German machines, to a four-legged cabane. In addition to supporting the wings the cabane of the Albatros carries the radiator, which is of the same shape as the wing section and which fits into an opening in the wing. The cabane is shown in Fig. 27. It will be seen that one of the cabane legs carries for a short distance the water tube from the radiator to the engine.

(To be continued.)

R.A.F. Appointments.

It was announced on March 24th that the Secretary of State for the Royal Air Force has appointed Captain J. L. L. Wrench, C.M.G., to be Private Secretary, and Captain G. Philippi, M.C., to be Assistant Private Secretary.

British Aviators in the Great Battle.

THE following telegrams, it was announced on March 26th, have been exchanged between the Air Ministry and General Salmond, G.H.Q., France :—

"The Air Council congratulates you and all ranks of the R.N.A.S., R.F.C., and Australian Flying Corps on the splendid work carried out during this great battle.

"We are all following their great deeds, and know that they will keep it going.—AIR MINISTRY."

General Salmond replied :—

"Very many thanks for Air Council's congratulations, which are much appreciated by all concerned. All ranks have

their tails well up, and the superiority of British over enemy airmen has never been more marked.—GENERAL SALMOND."

Fatal Accidents.

WHILE flying in South Essex on March 23rd Captain S. P. Gamon, Cheshires and R.F.C., was killed. At the inquest a verdict of "Accidental Death" was returned.

A verdict of "Death by Misadventure" was returned at an inquest at Napsbury War Hospital on 2nd Lieut. M. W. Doyle, R.F.C., who fell on March 22nd, while taking photographs from a height of 400 ft.

Whilst flying in North Wiltshire on March 23rd, Capt. A. H. Vinson, R.F.C., and 2nd Lieut. E. Leadbeater Gray, R.F.C., whose machine nose-dived to earth from a height of 200 ft., and Lieut. W. E. Carter, were killed.

Lieut. F. A. Lewis, R.F.C., was killed near Montrose, on March 29th, by his machine nose-diving to earth.

THE ROYAL AIR FORCE AND THE ARMY.

THE following Army Order was issued on March 29th :—

1. The Air Council has, as already notified, taken over the administration of all technical Air material, and all movements and postings of individuals of the Air Services.

2. It has now been decided that the Royal Air Force is to be brought into being as a unified force as from April 1st, 1918, from which date its administration will be vested in the Air Council.

3. From that date the procedure as between the Army Council and the Air Council, and between military commanders and Royal Air Force Commanders as regards the allocation and command of bodies of the Royal Air Force, and as regards correspondence, will be as follows :—

(i.) The Army Council will indicate to the Air Council the number of squadrons of the various classes required for all military commands at home and abroad ; where necessary they will inform the Air Council of any increases or decreases which they consider should be made.

(ii.) The Air Council will organise and equip these forces and hand them over as complete organisations to the military commanders. They will maintain them in *personnel* and equipment. Should the Air Council not be in a position to supply the complete requirements, to effect increases demanded, or to maintain air forces already provided, it will be for the Army Council to decide whether the deficiency can be met at the expense of contingents of the Royal Air Force operating under military commanders in other theatres.

(iii.) Serious deficiencies in *personnel* or equipment of Royal Air Force contingents, which are such as to affect materially the efficiency of the military force concerned, will be brought to the notice of the military commander by the Royal Air Force commander and communicated by the former to the Army Council.

(iv.) The military commander, who has under his orders a contingent of the Royal Air Force, will have the power to remove the commander of that contingent should he consider such action necessary, and may appoint temporarily a Royal Air Force officer to command from those available locally. The permanent replacement of the officer will be carried out by the Air Council after consultation with the Army Council.

(v.) Removal or transfer of subordinate Royal Air Force

officers belonging to contingents under military commands will normally be carried out, without consultation with the Army Council, by the Air Council, who will issue their instructions direct to the local Royal Air Force commander.

Should a military commander be dissatisfied with a subordinate Royal Air Force officer acting under his orders, he will have power to direct the local Royal Air Force commander to suspend the subordinate officer of the Royal Air Force pending reference to the Air Council. In such cases the Air Council will consult the Army Council as to the action to be taken.

(vi.) Important alterations in the establishment or equipment of Air Force units allotted to military commanders, such as will affect the mobility or efficiency of the military force as a whole, will not be carried out without the concurrence of the Army Council.

(vii.) Alterations of approved establishments, suggested by the Royal Air Force commander for the improvement of the contingent under his command, will be submitted through the military commander concerned, and by the latter to the Army Council.

(viii.) Recommendations for improved methods of co-operation or training with other arms will be submitted by military commanders to the Army Council, who will forward them with their recommendation to the Air Council.

(ix.) In general, communications on air subjects from military commanders, whether initiated by, or forwarded at the request of, Royal Air Force officers, or not, will continue to be addressed to the Army Council. The Army Council will inform the Air Council of the contents of these communications as may be necessary.

(x.) Reports and recommendations dealing with the technical training or equipment of Royal Air Force units will be submitted by Royal Air Force commanders direct to the Air Council, and instructions on these subjects will be issued by the Air Council direct to the Royal Air Force commander concerned.

(xi.) Reports on air operations of the Royal Air Force contingents allotted to military commanders will be forwarded by the Royal Air Force commander simultaneously to the military commander concerned and to the Chief of the Air Staff, Air Council.

THE TRANSFER OF THE R.F.C.

THE Air Council has made an Order under the Air Force (Constitution) Act, 1917, gazetted on April 2nd, directing that the following classes of officers shall become attached to the newly-formed Air Force :—

All officers holding permanent commissions in the Navy or Royal Marines or commissions other than temporary in the Royal Naval Reserve or Royal Naval Volunteer Reserve who on April 1st, 1918, belonged or were attached to the Royal Naval Air Service.

All officers holding permanent commissions in the Regular Forces or commissions in the Reserve of Officers, the Special Reserve (except Royal Flying Corps Special Reserve), Territorial Force or Territorial Force Reserve who belonged or were attached to the Royal Flying Corps.

All officers holding permanent commissions in the Indian forces who on April 1st were attached to the Royal Flying Corps.

The period for which those officers will be so attached will be the period of the war or four years, whichever may be the longer, unless the Air Council arrange with the Admiralty or Army Council for the return of an officer to the naval or military service before that time. The period, however, for which an officer who has been attached to the Royal Naval Air Service or to the Royal Flying Corps is attached to the Air Force shall in no case exceed such period as will complete the period for which he was attached to the Royal Naval Air Service or the Royal Flying Corps.

The following officers, warrant officers, petty officers, non-commissioned officers, and men are by the Order transferred to the Air Force :—

All other officers, all warrant officers, petty officers, non-commissioned officers and men of the naval or military forces (other than forces raised and provided by any part of his Majesty's Dominions outside the United Kingdom) who on April 1st belonged or were attached to the Royal Naval Air Service or the Royal Flying Corps.

All officers holding temporary commission on the general list of the Indian forces and all officers of the Indian Army Reserve who on April 1st were attached to the Royal Flying Corps.

Any person transferred or attached to the Air Force by virtue of the Order may, within three months from the time when he receives notice of such transfer or attachment, give notice to his commanding officer that he does not desire to be transferred or attached, and the transfer or attachment will be annulled.

An Army Order, dated March 26th, gives details of the transfer of warrant officers, non-commissioned officers and men of the Army to the Royal Air Force. It sets forth that on April 1st, 1918, all existing personnel (other ranks) who on that date belong to the Royal Flying Corps will cease to form part of the Army, and from that date inclusive will be embodied in the Royal Air Force.

In addition, all warrant officers, non-commissioned officers and men belonging to arms of the Service, other than the Royal Flying Corps, who on April 1st are attached to the Royal Flying Corps as explained in paragraph 4, will be transferred to the Royal Air Force.

Any warrant officer, non-commissioned officer or man transferred under paragraphs 1 or 2 may, within 3 months from the time when he receives notification of such transfer, give notice to the commanding officer of the unit with which he is then serving that his transfer to the Royal Air Force is not in accordance with his wishes. In that case the transfer will be annulled, without prejudice to the validity of anything which may have been done in the meantime.

For the purpose of transfer to the Royal Air Force, the expression "attached" used in paragraph 2 will embrace all warrant officers, non-commissioned officers and men of arms of the Service other than the Royal Flying Corps who are filling vacancies (including regimental employments) in the existing authorised War Establishments of any unit of the Royal Flying Corps at home or abroad, or who are employed at the Air Ministry.

The procedure for giving effect to the transfer of attached personnel referred to in paragraph 2 will be as follows :—

(a) On April 1st, 1918, or as soon as possible after that date, officers commanding units of the Royal Flying Corps will forward to officers commanding units concerned at home or abroad, or to General Headquarters, 3rd Echelon of

Expeditionary Forces, nominal rolls of all warrant officers, non-commissioned officers and men who were on April 1st, 1918, attached, within the meaning of paragraph 4, to units under their command.

(b) A certificate to the effect that each individual named on the roll has been informed that he has been transferred to the Royal Air Force, and that he may elect, within 3 months' to be re-transferred to the Army will be signed by an officer of the Royal Flying Corps unit concerned and appended to the nominal roll referred to in (a).

(c) On receipt of the nominal rolls referred to in (a) officers commanding units concerned at home, and Deputy Adjutant-Generals, 3rd Echelon of Expeditionary Forces, will publish in Part II of Orders the transfer of the soldiers named in the nominal rolls to the Royal Air Force as from April 1st, 1918.

A Copy of Part II of Orders will be sent to the Officer i/c the Royal Air Force Records, Blandford, Dorset, and to the Central Pay Officer, Royal Air Force, Woking, in addition to the normal distribution.

This Army Order will be quoted as the authority for such transfer.

(d) On receipt of Part II of Orders referred to in (c) Officers i/c Records will complete the soldiers' documents and transfer them to the custody of the Officer i/c the Royal Air Force Records.

(e) Similarly on receipt of Part II of Orders notifying the transfer of the soldiers to the Royal Air Force, Paymasters and Territorial Force Associations will arrange for the transfer of pay accounts and separation allowance payments to the Central Pay Officer, Royal Air Force.

The transfer will be effected in the same way as for men transferred from one corps to another corps within the Army.

UNIFORM OF THE ROYAL AIR FORCE.

SUPPLEMENTING the particulars given in our issue of two weeks ago, we are now able to give in full the regulations regarding the uniform of the Royal Air Force. They are as under:—

Khaki will be worn as service dress for the period of the war, after which uniform of the same pattern, but of light blue cloth, will be substituted as early as possible. The blue uniform may be worn by officers during the war as mess kit. The new uniform will not be made compulsory until sufficient time has elapsed for existing uniforms of the R.N.A.S. and R.F.C. to be worn out, unless an allowance is made to officers, when they will be expected to get khaki uniform as soon as possible. Further instructions on the latter point will be issued later.

Uniform in khaki and blue may be seen in Room 751, 3rd Floor, North Block, Cecil Chambers, Air Ministry.

Service Dress During the War.

Officers.

Cap and Cap Badge.—The cap is the same pattern as that worn by the R.N.A.S. The crown is khaki and the peak and band are black. The badge is entwined laurel leaves, above which is a reduced facsimile of the metal bird at present worn on the sleeve by the R.N.A.S., the whole being surmounted by a crown. Rank is denoted as follows:—

2nd Lieuts. and Lieuts...	One upright metal bar on each side of the badge.
Captains	Two upright metal bars on each side.
Field Officers	One row of gold oak leaves on the peak.
General Officers	Two rows of gold oak leaves on the peak.

Jacket.—The pattern is that of the military tunic Service Dress modified as follows:—(a)—No shoulder straps; (b) in lieu of "Sam Browne" belt a cloth belt is sewn on the back of the coat, which fastens in front with a bright buckle of gilt metal; (c) the buttons are the R.N.A.S. type—i.e., gilt metal with bird surmounted by crown.

Officers transferring from the R.N.A.S., and the R.F.C. will, on supplying themselves with Air Force uniform, wear rank distinction corresponding to that which they hold in their present service, whether their present rank is permanent or temporary.

Badges of Rank.—Distinction Lace.—The badges of the Royal Navy in khaki braid will be used, with a bird surmounted by a crown, both in gilded metal, in lieu of the executive curl. Rank is denoted as follows:—

2nd Lieut.	No lace, but bird and crown on both sleeves where lace would otherwise be.
Lieut. ..	One row of distinction lace surmounted by bird and crown.

Warrant officers, non-commissioned officers and men who within a period of 3 months claim the right to be retransferred to the Army will be dealt with as follows:—

(a) Those referred to in paragraph 1 will be transferred to the arm of the Service for which they are considered by the Army Council to be most suitable.

(b) Those referred to in paragraph 2 will in the first instance be returned to the Corps to which they formerly belonged.

In both cases action similar to that described in paragraph 5 will be taken, the documents of the soldier being transmitted by the Officer i/c the Royal Air Force Records to the Officer i/c the Army Record Office concerned, who will then issue the necessary orders for posting.

There are at the present time certain warrant officers, non-commissioned officers and men of other arms with the Royal Flying Corps performing duties directly connected with the work of that Corps, for whom no provision is made in paragraph 4, but who may nevertheless be required, either temporarily or otherwise, to carry on the work on which they are now engaged. To meet such cases the personnel affected will, on application being made by officers commanding units of the Royal Flying Corps, before May 1st, 1918, to General Officers Commanding-in-Chief concerned, be allowed to remain with the Royal Air Force until the question of transfer, with the consent of the individual concerned, to the Royal Air Force or withdrawal has been decided by the Army Council in conjunction with the Air Council.

General Officers Commanding-in-Chief will forward a statement showing numbers involved under paragraph 7 and nature of employment, together with their recommendation, to the Secretary, War Office (A.G. 1). Personnel whom it is then decided to transfer will be dealt with in accordance with paragraph 5.

Captain ..	Two rows of distinction lace surmounted by bird and crown.
Major ..	Two and a half rows of distinction lace surmounted by bird and crown.
Lieut.-Col.	Three rows of distinction lace surmounted by bird and crown.
Col. ..	Four rows of distinction lace surmounted by bird and crown.
Brig.-Gen.	One broad row of 2½ in. lace surmounted by bird and crown.
Maj.-Gen.	One broad row and one ordinary row of distinction lace surmounted by bird and crown.
Lieut.-Gen.	One broad and two ordinary rows of distinction lace surmounted by bird and crown.
General ..	One broad row and three ordinary rows of distinction lace surmounted by bird and crown.

Trousers and Breeches.—As now worn by the R.F.C.

Shirts and Collars.—Khaki shirts and collars with black ties.

Footgear.—With breeches—brown field boots or brown boots with puttees or gaiters or brown stockings with shoes for aerodrome and similar wear. With trousers—brown boots or shoes with brown socks.

Greatcoat.—The usual military type of British warm for mounted services. Badges of rank will be indicated on the shoulder strap in the same way as on the jacket, by distinction lace surmounted by bird and crown.

Distinguishing Marks.—For Pilots.—The "Wings" of the R.F.C. on the left breast, with the substitution of the letters "R.A.F." for "R.F.C." For Observers.—The "Half Wing" with the letter "O" as at present worn by observers in the R.F.C. For Medical Officers.—The badge of Caduceus of Mercury on the lapels of the jacket. The cap will be the ordinary cap of the Air Force officer.

Blue Uniform used as Mess Kit.—The blue uniform is the same pattern as the khaki uniform, except that gold braid is worn instead of khaki braid. White shirts and collars and black ties will be worn, and black boots or shoes.

Warrant Officers, 1st Class.

Cap and Cap Badge.—The cap and cap badge will be the same as for officers, but with no bars on each side of the badge. Uniform (including great coat) will be of the same pattern as for officers, but the cloth will be of the texture issued by the R.A.C.D. Rank will be denoted by a bird surmounted by a crown, both in gilt metal, and worn on both sleeves close to the shoulder.

Warrant Officers 2nd Class, N.C.Os., and Men.

Cap and Badge.—The same pattern as at present issued to petty officers in the Royal Navy, but with khaki crown and black peak. A bird is substituted for the anchor on the Royal Navy badge. Warrant officers 2nd class and N.C.Os. will wear a gold embroidered badge, and men a worsted embroidered badge.

Jacket.—The same pattern as officers, except that it will be high all round collar, and that buttons will be of bronze colour instead of gilt. Warrant officers 2nd class, N.C.Os. and men will wear the bird in red silk on both sleeves near the shoulders where the letters R.F.C. are worn at present by the rank and file of the R.F.C. Wireless mechanics will wear, in addition, the "hand and thunderbolt" immediately under the bird.

Badges of Rank.—Warrant officers 2nd class (Quartermaster sergeants).—Crown on both sleeves below the elbow.

Flight Sergeants.—Three chevrons and crown. Corporals and Sergeants.—Two and three chevrons respectively. 1st Class Air Mechanics.—Two-bladed propellers worn immediately under the bird.

Footgear.—Brown boots will be worn.

Leave and Parade Dress.—Breeches, puttees and boots. Trousers will be worn as ordered.

Greatcoat.—The usual military type British warm for mounted services. The red silk bird and badges of rank will be worn as on the jacket.

AIRISMS

FROM THE FOUR WINDS

WITHOUT much doubt, the Petrograd-Moscow air post which made a start on March 31st, may be taken as having the backing of the German invaders.

FROM 2nd Lieut. Grandi, R.F.C., come the following points regarding the "What is it?" German badge which appeared in "FLIGHT" last week:—

"Re the badge mentioned on page 342 of your paper of March 28th, I think the badge is an Austrian badge. It has the Austrian crown with the Austrian laurel and oak leaves. The aeroplane I take it to be an Etrich Taube monoplane, first experimented I think in 1910 at their arsenal (Broke Arsenal?). At that time aviation was but poorly developed in Germany, and German officers were sent to Austria to be instructed. Maybe the badge belonged to an officer who graduated on one of these Etrich monoplanes at their arsenal in the pre-war days. The fact that it was coined in Germany is not very surprising. Even now the cavalry pistols used in Germany are made in Austria, and those used in Austria are made in Germany. One of these makes is the Roth-Sauer—the other I don't know for certain. So that it is equally likely that these Austrian badges should have been made in Germany. These pieces of odd information and suppositions I am sending to you in the hope that they may help you to find the true derivation and birth and meaning of the badge."

The Barb on February 23rd last reached its 10th number. This we gather from a copy of that date which has just reached us from "Publisher" Flight Lieut. J. B. Daniell, R.N. It has grown to six pages from four, and the cause of this increase is of particular interest, as with this No. 10 issue a "two-talk" departure has been made by the inclusion of a couple of pages in French for the special benefit of the French comrades in arms in the Trier camp. But in this

connection, perhaps it is better to let the Editor have his own say, especially as from this may be gathered that the editorial chair is, even under the exceptional conditions which should call forth nothing but sympathy, up against its critical readers, just the same as in Blighty, plus the enemy censor. If the latter is any more trying than the one that is with us, well —; but here is what *The Barb* Editor says under the side-head of "A Happy Medium."

"February 16th, 1918.

"At last we produce *The Barb* in the 'two talks.' We trust that this progressive step will meet with the approval of one and all.

"*The Barb* has been having rather rough going recently. There are always those who take exception to the tone of a paper. These objections generally develop in the form of letters to the Editor, signed 'Old Subscriber,' ticking off the Editor-man for not devoting more space to the affairs of the Society for the Prevention of Snoring in Church, or something like that. Even here we have objectors. The moral tone, say they, is a couple of semi-quavers sharp, or flat.

"Now, we are trying to find a happy medium of literary style, acceptable in the eyes of the majority. We don't want to give offence to the susceptibilities of the puritanical, neither can we assume a style that might find favor in the callow mind of a boy-scout element, for *The Barb* is supported by "Officers and Gentlemen"; men of the world, in a world of men.

"We hope that *The Barb* in two languages, will surmount the obstacles which threaten its destruction. In any event 'tis a labour of love in which much time and energy is necessarily consumed."

ANOTHER feature of *The Barb*, in its seventh spasm, is a series "In the Public Eye." No. 7 purports to depict "Capt. R. T. Leighton, Westmoreland and Cumberland Yeo. and R.F.C., Special Artist to *The Barb*." Who Nos. 1 to 6



Queen Alexandra and Princess Victoria during their visit to the Handley Page works last week watching work in progress under the guidance of Mr. Handley Page (on the left).

are, we know not, the numbers of *The Barb* containing these having failed to reach us.

VERY helpful work has been accomplished by the "Overseas Club" in its efforts to help forward the cause of the Allies throughout our widely-flung Empire. By way of marking the amalgamation of the R.N.A.S. and R.F.C. on April 1st, a special Royal Air Force number of the Club's publication, "Overseas," has been featured. It was a compliment to the Club and its work that Lord Rothermere, the Air Minister, should have seen fit to supply a message to the members, who have contributed to the Air Services 159 aeroplanes and seaplanes since the beginning of the war, in the form of the following foreword:—

"A MESSAGE FROM THE AIR MINISTER.

"Lord Rothermere's Tribute to our Flying Men.

"Of all the amazing object-lessons in personal bravery which Armageddon has given us, surely there is nothing more wonderful than the British flying man. All our previous standards of bravery and daring have had to be revised in face of the deeds of the boys in the R.F.C. and in the R.N.A.S. I do not think any of us who come into daily contact with the pilots and observers in our Air Service ever quite lose a sense of wonder when we come face to face with them. These boys of 18, 19 and 20, as they are for the most part, without any vestige of 'side,' all imbued with the desire that their splendid deeds should remain anonymous, are one of the miracles of the War.

"I wonder if those who read the daily bulletins issued by the Air Service as regards the fighting on the various fronts have any idea of what is entailed by the simple statement 'twelve enemy aircraft were brought down'? Spinning nose dives, tail-slides, side-slips, 'falling leaf,' looping the loop, and the many other 'stunts' entailed almost take our breath away.

"The performances of our flying men to-day and the aerobatics which form part of their daily routine were undreamed of even eighteen months since. Only human beings of perfect physique, of matchless bravery or of extraordinary quickness of brain can have any chance of distinguishing themselves in aerial warfare in 1918. And here is the miracle—the British Empire possesses thousands, not hundreds, of these 'supermen.'

"Our pilots come from all sections of the British Empire; from our public schools and universities; from the counting house and office desk in London, Manchester and Glasgow; from the wheat farm in the Canadian North-West; the sheep station in Australia and New Zealand; from the gold

mines on the Rand—in fact, from every section of His Majesty's Dominions these boys have come to 'strafe the Hun.'

"Whatever mistakes there may have been in the past owing to a lack of realisation of the outstanding part that aerial warfare was destined to play, it is very largely thanks to the bravery of the British airman that the Empire occupies its present position in the Air.

"ROTHERMERE."

THERE have been several instances of aviators who have flown with only one leg, but a flying officer with one arm is probably unique. There is at the present moment a young officer who lost his right arm below the elbow in the Battle of the Somme, and now, after the greatest of difficulty, he has succeeded in obtaining leave to fly. He has a very ingenious artificial arm of American manufacture fitted, and appears to be able to do solo flying at least as well as most of his fellow pupils. His courage deserves every success.

Trials of our Airmen.—STOLID HIGHLANDER (*contemplating the usual humorous and complete mix-up of pilot and machine after a bad forced landing*): "Hae ye broke yer machine?"—Punch.

TEN YEARS AGO.

Excerpts from the "Auto." ("FLIGHT's" precursor and sister journal) of March, 1908. "FLIGHT" was founded at the latter end of 1908.

MR. HENRY FARMAN MAKES A NEW RECORD.

It is really most gratifying to watch the facility and rapidity with which Mr. Henry Farman continues his progress towards the conquest of the air. Mr. Farman summoned the Aero Club Committee to witness further attempts on Saturday. Two posts, 550 yards apart, were erected, and outside these the Farman aeroplane circled twice in succession. The official distance is given as 2004.8 metres, and the official time as 3 min. 31 sec.

TWO PASSENGERS ON THE DELAGRANGE.

Not least gratifying in this conquest of the air, is the good fellowship existing between the successful and epoch-making rivals. After having successfully achieved a circular flight of over a mile in length, on Saturday, March 21st, M. Delagrangé remounted his machine, and Mr. Henry Farman joined him. M. Delagrangé then succeeded in accomplishing a short flight with his passenger. This is the first recorded occasion on which a heavier-than-air machine has carried two persons.

THE HUN.

As I was strolling 'cross the 'drome
One fine September day
I saw a jovial Rumpety
Land in a curious way.

It landed not with airy grace
But struck the quaintest pose!
It smote the ground upon its face—
In other words—its nose.

Forthwith a form in yellow coat
Uprose in posture weird,
Described a neat parabola,
And promptly disappeared.

A fount of water rose aloft
I heard a muffled scream,
I saw a figure clamber from
The local sewer stream.

In fear and trepidation
I approached the prostrate Rump,
Made a brief investigation
And ejaculated "Umph!"

Said I, "Oh Maurice Farman,
Your position is absurd,
You have landed in a manner
Unbecoming of a bird.

"I prithee give your reasons
For this dubious descent,
I trust, Oh Farman Shorthorn,
It was not unkindly meant."

The Maurice gave a quiver
(Its choler was intense),
But in waiting for its answer
Did not keep me in suspense.

More in anger than in sorrow
It began its tale of woe.
"D'you think I like to land like that?
I'd d—d well like to know!"

"I was happy till this morning
In my hangar over there,
Till I met that little devil
With his bally cocksure air.

"He'd had enough of dual,
And he'd landed once or twice,
So he wanted to go solo
In spite of all advice.

"I'm sick of doing dual
In a bally pusher bus.
Why, any fool can fly those things,
Said he, and sneered at us,

"The C.O. didn't argue,
Or make a needless row,
He merely indicated me,
And said 'Right—go up now.'

"The Hun was not all put out,
In fact, he soon got in.
'All right, my little friend,' said I,
'The fun will now begin.'

"He took me up, then stalled me,
Not on purpose, you may bet;
His flying quite appalled me:
The worst I'd sampled yet.

"Our few heartrending circuits
I will not now portray,
But I trembled every minute
As we floundered on our way.

"We frolic'd o'er the sergeants' mess,
We gambol'd o'er the sheds,
We side-slipped and we assed about
Just clearing people's heads.

"At last the Hun decided
He'd now essay to land.
'All right, my little friend,' said I,
'Now I will take a hand.'

"So when he pulled the stick back
To skim along the ground,
I didn't take no notice,
* * * * *
And I wish he had been drowned."
The Rumpety then ceased to speak
(It had no more to say),
And soon a lorry came along
To cart the wreck away.
* * * * *

The moral, gentle reader,
Is, "When, thinking you can fly,
Don't air your vaunted prowess
With a Rumpety near by."

"PITOT."

THE RECENT AND FUTURE GROWTH OF AERIAL LAW.

By Dr. H. D. HAZELTINE, Reader in English Law in the University of Cambridge.

(Concluded from page 354.)

THE immunity of certain kinds of property in defended places under bombardment is embodied in Article 27 of the Regulations annexed to the Hague Convention concerning the Laws and Customs of War on Land, which declares that in sieges and bombardments all necessary step should be taken to spare, as far as possible, buildings devoted to religion, art, science and charity, historic monuments, hospitals and places where the sick and wounded are collected, provided they are not used at the same time for military purposes. Hospitals and places where the sick and wounded are collected come also within the protection afforded by the general principles of the Geneva Convention.

The question as to whether private houses within defended localities are also protected is one of considerable difficulty. As a survival of earlier practices belligerents have directed the fire of their guns upon private houses, even during the wars of our own time, in order to bring pressure to bear upon the civilian population. This practice of attacking those who are unable to defend themselves, although sanctioned by the actualities of many bombardments in history, is contrary to the opinion of enlightened jurists, such as Hall, the fundamental principles of modern warfare, and the dictates of public conscience and human thought. It should not be forgotten, furthermore, that in the preamble to the Hague Convention concerning the Laws and Customs of War on Land it is expressly declared by the Powers that, in cases not covered by the Regulations annexed to the Convention, populations and belligerents remain under the protection and rule of the principles of the law of nations based on the usages of civilised states, the laws of humanity and the requirements of the public conscience.

In respect to persons within defended localities, it should be observed that the principles of the Geneva Convention protect the personnel of the Red Cross services and the sick and wounded under their care, and that on principles already explained in connection with private houses, the civilian population, as non-combatants, are equally immune from deliberate and intentional attack by bombarding forces.

It is, then, not an unfair conclusion that in the bombardment of defended localities the only legitimate objects of attack, according to the spirit of modern international law and morality, are properties and persons of military value, as, for example, fortifications and soldiers. The injury or even destruction of properties and persons legally and morally immune is frequently the unintentional result of bombardments carried out by belligerent forces scrupulous in their respect for legal and moral principles; but the deliberate attack upon immune objects and persons within a defended locality reduces warfare to a species of primitive savagery.

The fundamental principles of international law in regard to bombardment in maritime warfare are embodied in the Hague Convention (IX, 1907) respecting Bombardment by Naval Forces in Time of War. It is held by jurists and belligerents that these principles apply to aerial bombardment in so far as they are appropriate.

The Convention distinguishes, as does the conventional law in regard to bombardment in land warfare, between defended and undefended localities; but the rules of naval and of land bombardment based on this distinction are not identical.

It is declared in the Convention that "the bombardment by naval forces of undefended ports, towns, villages, dwellings, or buildings is forbidden" (Art. I). This prohibition, which it is generally agreed applies to aerial bombardment, is in terms absolute. From other parts of the Convention it is clear, however, that, unlike the prohibition of bombardment of undefended localities in land warfare, the prohibition in naval warfare is subject to important limitations. In the first place, certain properties within an undefended locality may be destroyed by bombardment after a summons followed by a reasonable interval of time, if all other means are impossible, and when the local authorities have not themselves destroyed them within the time fixed. The properties which are the legitimate objects of bombardment are "military works, military or naval establishments, depôts of arms or war material, workshops of plant which could be utilised for the needs of the hostile fleet or army, and ships of war in the harbour." The Convention further provides that "if for military reasons, immediate action [in respect to the destruction of the specified properties] is necessary, and no delay can be

allowed to the enemy, it is nevertheless understood that the prohibition to bombard the undefended town holds good . . . and that the commander shall take all due measures in order that the town may suffer as little harm as possible." The second limitation on the principle of non-bombardment of undefended localities is to the effect that "after due notice has been given, the bombardment of undefended ports, towns, villages, dwellings, or buildings may be commenced, if the local authorities, on a formal summons being made to them, decline to comply with requisitions for provisions or supplies necessary for the immediate use of the naval force before the place in question." The Convention expressly declares, however, that the bombardment of undefended localities for the non-payment of money contributions is forbidden.

The naval bombardment of defended localities is on principle permissible. But it is expressly provided in the Convention that "in bombardments by naval forces all necessary steps should be taken by the commander to spare as far as possible buildings devoted to public worship, art, science or charitable purposes, historic monuments, hospitals and places where the sick or wounded are collected, provided they are not used at the time for military purposes." The Geneva Convention also protects the structures, equipment and personnel of the Red Cross services and the sick and wounded. On principle, it would seem, furthermore, that in naval, no less than in land warfare, bombardment, private houses and the civilian or non-combatant population are protected against deliberate attack.

It is to be observed that immunities accorded by customary and conventional international law to certain properties and persons in defended localities upon bombardments in naval warfare apply also to such properties and persons in undefended localities when, on failure to furnish requisitions, such undefended localities are under legitimate bombardment by naval forces.

International law in regard to land and naval bombardment embodies, therefore, two fundamental principles. The first principle is that the bombardment of all *undefended* localities is forbidden. But, whereas in land warfare this prohibition is absolute, in naval warfare it is subject to the limitation that certain properties of military and naval value to the enemy may be destroyed, and that, on failure to furnish requisitions, the prohibition is removed and bombardment of the locality is permissible. The second principle is that the bombardment of all *defended* localities is permissible. But in all bombardments of defended localities and also of undefended places (which are subject, in one case, to bombardment by naval forces) there are certain classes of properties and persons immune from deliberate attack.

These fundamental rules, developed in the main for the guidance of armies and navies, as distinct from air forces, have application to the conduct of air forces in so far as such rules are in the nature of things appropriate to aerial as contrasted with land and maritime warfare. Until a more adequate code of rules in regard to aerial bombardment is devised and enforced by states the existing principles constitute the basis of legitimate aerial bombardment. These principles form the test or criterion which we must apply to the facts of each separate air raid in order to determine whether the airmen have conducted themselves in a legitimate or an illegitimate manner. If we study the aerial raids of the present war from this point of view a striking difference between the practices of the two sets of belligerent airmen presents itself. This difference may be expressed by saying that whereas the airmen of Great Britain and her allies have conscientiously tried to obey legal principles and have as a general rule succeeded in doing this, the airmen of the enemy states have shown little or no respect for the dictates of either law or morality.

They have on many occasions infringed the fundamental principle that the aerial bombardment of undefended localities is prohibited. Even in the case of undefended places on coasts and large tidal rivers, localities subject to the special provisions of the law of naval bombardment, they have not restricted their bombing attacks to objects of military or naval value, but have deliberately hit the civilian population and their property. Nor have the enemy airmen been able to justify their bombardment of coast towns on the ground that the local authorities have declined to comply with requisitions, for no summons to make requisitions have been made. Likewise in raids upon defended localities enemy

airmen have not complied with the rules either of land or of sea warfare. Frequently flying at great heights and at night they have been unable or unwilling so to direct their bombs that only objects and persons of military or naval value are hit and immune properties and persons (such as churches, hospitals, private houses, the Red Cross personnel, and non-combatants) are spared. All of the safeguards embodied in the customary and conventional law of nations, such as the Geneva Convention and the Hague Conventions, relative to bombardment, have been repeatedly disregarded by enemy airmen. Proof of this is to be found in the history of German air raids on the undefended localities of England, France, and Italy. German ruthlessness is not restricted to warfare on land and at sea; it extends also to warfare from the air upon both defended and undefended localities in inland regions and along the coasts and tidal rivers.

It is surprising that, although the distinction between defended and undefended places is one of fundamental importance in the rules respecting bombardments in land, naval, and aerial warfare, international conventions have never defined the terms "defended" and "undefended." For definitions of these terms one is forced to rely on the opinions of jurists and conclusions to be drawn from the practice of belligerents and the general provisions of conventions in regard to bombardment. Inasmuch as lawyers are not always of one mind, the practices of different belligerents vary one from another, and the conclusions to be drawn from conventions are meagre; the general result is that there is much confusion of thought as to the true definitions of defended and undefended localities. If one only had an authoritative definition of a defended locality, all other places might properly be viewed as undefended. One thing is clear. The distinctions of the law of bombardment are based on the difference between defended and undefended, not between fortified and unfortified, localities. A fortified locality is *prima facie* viewed as defended, but an unfortified place may, nevertheless, be a defended locality, in the sense of the law, provided there are present armed forces capable of offering resistance.

After the war one of the problems of international conferences will be to frame satisfactory definitions of defended and undefended localities for embodiment in codes of rules relating to the three kinds of warfare—land, naval, and aerial. As the methods of bombardment by army, navy, and air force vary one from another in important particulars, it would seem that no one definition of a defended or of an undefended locality will suffice for all three kinds of bombardment; methods of defence must vary in accordance with the methods employed by the bombarding forces. The history of the war has demonstrated the fact that the mere presence of infantry or cavalry forces is not a sufficient defence against attacks by hostile aircraft upon a town or village. On principle a locality can only be deemed a defended place, from the point of view of aerial raids, when there are present combatant forces equipped with weapons of warfare specially designed to repel attacks from the air, such as defending squadrons of aircraft or anti-aircraft guns.

Reprisals play an important rôle in aerial as in land and maritime warfare. Reprisals are recognised by the law of nations as legitimate means of compelling the enemy who has broken the rules of warfare to comply with them in the future. In the British *Manual of Land Warfare* (§§452-460) the leading principles are stated to be as follows: "Reprisals

between belligerents are retaliation for illegitimate acts of warfare, for the purpose of making the enemy comply in future with the recognised laws of war . . . They are not a means of punishment, or of arbitrary vengeance, but of coercion . . . Reprisals are an extreme measure because in most cases they inflict suffering upon innocent individuals. In this, however, their coercive force exists, and they are indispensable as a last resource." The principle of the legitimacy of reprisals rests upon custom as distinct from convention; and certain limitations upon the use of reprisals have become generally recognised. The rules adopted by the Institute of International Law in its *Manual of the Laws of War* (§§ 85, 86) embody these general limitations, and are as follows: (1) Reprisals are prohibited in case reparation is given for the damage done by an illegal act; (2) in grave cases, in which reprisals are an imperative necessity, they must never exceed the degree of the violation committed by the enemy; (3) they may only be resorted to with the authorisation of the commander-in-chief; (4) they must in every case respect the laws of humanity and of morality. These fundamental rules are as applicable to aerial as to land warfare; and they may well serve as a guide to belligerent air forces in carrying out reprisals. Repeated violations of the laws of aerial warfare committed by German airmen in bombing undefended localities and also in bombing defended places without regard to the recognised immunities of certain classes of properties and persons fully justify reprisals on the part of Great Britain and the allied states. The policy of reprisals announced by Lord Rothermere, President of the Air Council, is already in process of execution, and there is every evidence that this policy will be pursued with vigour by all the allied states until the enemy is coerced into obedience to the laws of aerial warfare. That British aerial reprisals have been and will be carried out with scrupulous regard for the laws of humanity is clear from the recent history of air raids on German towns and from a study of British character. As remarked by Major Baird, Parliamentary Secretary to the Air Council, in the House of Commons, on February 21st, "British air raids have military objectives. No Englishman, Scotsman, Welshman, or Irishman would intentionally kill women and children."

Before concluding his lecture, Dr. Hazeltine referred briefly to certain leading principles of international aerial law in regard to neutrality. The war has established the principle that the entire air-space above a neutral country is of a neutral character, and closed to all belligerent airmen. The lecturer also drew attention to cases in which German aircraft had captured or attacked neutral ships on the high seas, and to the correspondence between the British and Dutch Governments respecting the internment in Holland of British seaplanes salvaged on the high seas.

After the war it will be necessary for the states of the civilised world to frame two aerial codes. The first will embody the legal principles applicable to belligerents and neutrals in time of aerial war. The most humane and enlightened practices during the present war will serve as a partial basis of this new body of rules. The second international code will embody the principles applicable to wireless communication and aerial navigation between states. Existing wireless conventions and the recent studies, by lawyers, practical airmen, and international conferences, of the problems connected with international aircraft navigation will serve as a partial basis of the new code of international aerial rules for times of peace.

INTERNATIONAL AIRCRAFT STANDARDS.

(Continued from page 346.)

3N13—Specifications for Soft Solder.

GENERAL.—1. The general specifications, 1G1, shall form according to their applicability, a part of these specifications.

MATERIAL.—2. Solder shall be made from new tin and commercially pure new lead. Its composition shall be as follows:—

	Per cent.
Lead and tin, minimum	99.8
Tin	49 to 51
Antimony, maximum	10
Zinc	None

DELIVERY, SHIPPING, AND PACKING.—3. Solder shall be delivered in 1-lb. bars. The mark "Half-and-half" shall be cast on each bar. The bars shall be packed in boxes, the gross weight of which shall not exceed 220 lb. (100 kg.).

REFERENCES.—4. United States Navy Department Specification No. 4787.

3N15—Specifications for Brass Wire for Brazing.

GENERAL.—1. The general specifications, 1G1, shall form, according to their applicability, a part of these specifications.

MATERIAL.—2. (a) The composition of the material shall be as follows:—

	Per cent.
Copper	78.82
Zinc	Remainder
Total impurities not greater than	1.25
Lead maximum	0.3
Iron	0.1

ANALYSIS.—(a) An analysis shall be made of samples taken from 1 bar of each lot of 25.

MANUFACTURE.—3. (a) The bars shall be made from lake or electrolytic copper, conforming to the I.A.S.B. specification 2N2, and from virgin spelter conforming to the I.A.S.B. specification 2N3.

(b) No scrap shall be used in the manufacture of these bars other than that produced in the manufacturer's own plants and which is of the same composition as the material specified.

DELIVERY, SHIPPING, AND PACKING.—4. The wire shall be from 0.187 to 0.25 in. (4.76 to 6.35 mm.) in diameter and shall be furnished in bundles or coils of net weight not exceeding 220 lbs. (100 kg.).

(To be continued.)

Personals

Casualties.

Captain ROBERT EDWARD ANGUS, Yeomanry and R.F.C., reported as missing on November 20th, 1917, and now reported dead, was aged 23. He was educated at St. Ninian's, Moffat, and Loretto, and on leaving school at Easter, 1914, before going up to Cambridge in the autumn, he obtained a commission in the Ayrshire Yeomanry, and was mobilised on the outbreak of war. He went out to Gallipoli with his regiment in the autumn of 1915, and, after the evacuation of the Peninsula, he saw service with the Yeomanry in Egypt, and also for a time with the armoured cars. He applied to join the R.F.C., and trained in Egypt, and afterwards in this country, and went out to the front with his squadron last October. After a month's service he was promoted Flight Commander, and was due to leave his old squadron on the morning of an attack, but at his own request he was allowed to take part in it. He was last seen, in the mist which prevailed that day, leading his squadron, about five miles behind the lines, to drop his bombs on a German battery, which he put out of action. No further details of his fate have since been ascertained, except news of his death through German sources. Captain Angus was the only son of the late James Angus, J.P., of Ochiltree House, Ayrshire, and of Mrs. Angus, of Hill House, Leckhampton, Cheltenham, and grandson of Mr. Robert Angus, D.L., of Ladykirk, Ayrshire.

Second Lieutenant GEORGE COWIE, R.F.C., reported missing on October 22nd, now officially reported killed on that date, in his 19th year, was the only son of Captain and Mrs. A. M. Cowie, of Dufftown, Banffshire. He was educated at Alton Burn, Nairn, in Brussels, and at Rugby (Schoolhouse), and was in the school eleven, and in the swimming six. He was killed as the result of a collision during an engagement in the air, and fell behind the enemy lines.

Captain F. R. HUDSON, R.F.C., son of the Rev. A. R. Hudson, rector of Huntsham, Devon, who was killed while flying at night on March 21st, was educated at St. Edward's School, Oxford. He joined the R.F.C. in October, 1915, and served in France from October, 1916, to May, 1917, when he was wounded, and had since been flying in England, obtaining his flight at the beginning of this year.

Lieutenant THOMAS MCKENNY HUGHES, K.R.R.C., attached R.F.C., killed last month while flying abroad, was a prominent London Rowing Club oarsman. The son of the late Professor Hughes, F.R.S., he was educated at Eton and Trinity College, Cambridge. Early in the war he secured his commission in the K.R.R.C., but transferred to the R.F.C. early in 1917, and was engaged on special duties at the front when he met his death. He joined the London Rowing Club after leaving Cambridge, and was one of its most successful oarsmen during the three seasons immediately preceding the war. In the season before the war Lieutenant Hughes took up sculling with success, winning the juniors at Molesey Regatta, and taking the junior-senior sculls at Kingston Regatta a week later.

Second Lieutenant A. E. IKIN, R.F.C., who was killed while flying in France on May 11th, was the eldest son of Dr. A. E. Ikin, Director of Education at Blackpool, was 19 years of age, and was educated at Hereford Grammar School, and later at Norwich, and gave considerable promise in science and mathematics. He gained honours in the Cambridge Locals when he was only 14, and passed the London Intermediate Science Examination at 17. During his last year at school he won a Board of Education Exhibition of £50 a year at Cambridge, and also an open scholarship at Clare College. For two months before going to France Mr. Ikin had been engaged in night-flying against enemy air-raiders; but more recently he had taken part in night-bombing over the enemy lines and on other special flight work.

Second Lieutenant OWEN WATKIN WYNN HARDINGE MEREDITH, R.F.C., who was killed in action on November 20th, 1917, aged 24, was the only child of the late Ven. Thomas Meredith, M.A., Vicar of Wolston and Archdeacon of Singapore, and of Mrs. Meredith, Park Road, Leamington.

Captain ERNEST DYCE MESSERVY, London Regt., attached R.F.C., who was missing on July 20th, 1917, and is now believed to have been killed that day, was the youngest son of the late Ernest and Dyce Messervy, Telawakelle, Ceylon, and nephew of Mrs. Thorne, Highfield Park, Heckfield. His age was 23.

Lieutenant J. W. R. THOMPSON, R.F.C., killed in action on March 22nd, was the son of Mr. A. Warren Thompson, of

St. Nicholas Street, Scarborough, who almost at the same time received news that a younger son, Second Lieutenant A. E. Thompson, R.F.C., was wounded on March 24th, and is now in hospital. Lieutenant J. W. R. Thompson, who was 22, took a lively interest in local sports, at Scarborough, in particular hockey and swimming. He joined the R.F.C. in the early days of the war, and received his commission in the field. He was twice mentioned in despatches. For some time he had been in England on instructional duties, and at his own request he went out to the front again about two months ago.

Lieutenant ALBERT NEAVE WESTLAKE, M.C., B.A., North Staffordshire Regiment, attached R.F.C., previously reported missing, and now reported killed on January 4th, in his 25th year, was the only son of Mrs. Westlake, Wayside, Waleham, Dorset.

Captain EDWARD KERR ANDERSON, H.L.I., attached R.F.C., who died at Winchester on March 16th as the result of a flying accident, was twenty-one years of age and the youngest son of Mr. William J. Anderson, of Glasgow. He had his captaincy in the Army in March of last year, when he was appointed flight commander, R.F.C. He was an experienced pilot, and was very popular with all ranks at the Wing headquarters. The funeral of Captain Anderson took place at Glasgow with full military honours.

Captain DESMOND GEORGE BUTLER, Leinster Regiment, attached R.F.C., killed while flying on March 17th, aged 23, was the elder son of the late Captain G. J. Butler, R.E. He was educated at Plymouth College and joined up the day war was declared and was sent to France on August 25. A few months later he was recommended for a commission, which he obtained in the first Leinster Regiment. He was wounded in the battle of Ypres in 1915. On his return to the front in September he was attached to the trench mortars and promoted lieutenant in February, 1916, and captain in March, and given the post of D.T.M.O. on the Headquarter Artillery Staff of a division. He was present at the battles of the Somme, Arras, and Vimy Ridge, being mentioned in despatches for his excellent work. In August, 1917, he applied for a transfer to the R.F.C. and came to England for his training and at one aerodrome he had acted as adjutant since Christmas.

Captain RODEN LATHAM CHATTERTON, Leinster Regiment, attached R.F.C., who died in hospital on March 29th, from injuries received in a flying accident on March 27th, was the only son of Colonel G. D. L. Chatterton, Indian Army, and Mrs. Chatterton. His age was 22.

Second Lieutenant ERIC ALAN CLARK, R.F.C., who was accidentally killed while flying on March 20th, aged 20, was the only son of Mr. and Mrs. C. W. H. Clark, "Fernhurst," Aughton.

Second Lieutenant LUIGI G. COSTA, R.F.C., who was killed in an aeroplane accident in Norfolk on March 19th, aged 19, was the eldest son of Cavaliere and Signora G. Costa, of "Fairlawn," West Hill, Sydenham, and formerly of Genoa, Italy, and was educated at Dulwich College, where he was captain of the first cricket XI. He was also a good football player and an excellent swimmer and oarsman. He enlisted in the R.F.C. in March, 1917, and shortly afterwards gained his commission, being awarded his "wings" last January, since when he had been doing good service as an instructor.

Lieutenant H. PERCY DAWSON, R.F.C., who was killed at a Hampshire aerodrome recently, was 27 years old and lived at Harddeslea, Crouch End. He had seen much service overseas. Lieutenant Dawson, at the time of his death, was about to return to France. He was buried at Edmonton, the coffin being borne by six R.F.C. officers.

Lieutenant M. W. DOYLE, who was killed while flying near St. Albans, in his 25th year, and was buried with military honours at Boscombe Cemetery on March 27th, served for two long periods in France, being with the first squadron to cross over at the outbreak of war. Most of his later service had been as an observer. He only came home last October to qualify for a pilot's certificate, and his training for this was all but completed. He was the eldest and only remaining son of Major M. J. Doyle, of the Indian Supply and Transport Corps—now serving in Calcutta—and of Mrs. Doyle, of 121, Belle Vue Road, Southbourne-on-Sea, whose younger son, Bernard John, died of wounds in France.

Flight Lieutenant LEA EWART BARNES WIMBUSH, R.N., who died on March 28th, of injuries received in a flying accident on the previous day, aged 19, was the eldest son of Mr. and Mrs. John Wimbush, of 13, Pembroke Gardens, Kensington. He was educated at Glengorse, Eastbourne, and at Haileybury. After leaving school he joined the R.N.A.S. in June, 1916, and went out to France in February, 1917. He was wounded in an air fight when flying over the enemy's lines in May of that year. For the last eight months he had been acting as instructor, and was just about to take up an appointment on active service.

Missing.

In the list of officers missing is a member of the famous flying family of McCudden. This is Second Lieutenant J. ANTHONY MCCUDDEN, M.C., who has served with distinction on the Western front. He is a younger brother of Captain James Byford McCudden, whose award of the Victoria Cross was announced recently, and who had already received the D.S.O., the M.C., and the Military Medal. The eldest of the brothers was killed while flying in May, 1915.

Married.

On March 21st, at St. Mary Abbot's, Kensington, Captain C. FFOLIOTT DENNING, M.C., R.F.C., eldest son of Dr. and Mrs. C. E. Denning, of Epping, was married to EILEEN J. SMYTHE, youngest daughter of Mr. and Mrs. Smythe, Darlington, Yorks.

On March 16th, at St. Aidan's, Coulsdon, Lieutenant CECIL DILLON MCGURK, R.F.C., only son of Mr. and Mrs. McGurk, of Darlington, was married to ELEANOR, only daughter of Dr. and Mrs. VICTOR K. RYAN, of Coulsdon, Surrey.

On March 27th, at Whitefield's, Second Lieutenant RONALD MCKINNON WOOD, R.F.C., third son of the Rt. Hon. Thomas McKinnon Wood and Mrs. McKinnon Wood, of 16, Portland Place, was married to GWENDOLEN ELAINE DYKES, fifth daughter of the Rt. Hon. Sir ALBERT SPICER and Lady Spicer, of 10, Lancaster Gate.

To be Married.

The engagement is announced between Captain HUGH W. MCKENNA, R.F.C., and HÉLÈNE, youngest daughter of Mme. LALLEMAND, of Civray and Paris. The marriage will take place in Paris, and the date to be announced later.

Items.

Major-General Sir HUGH TRENCHARD (Chief of the Air Staff) had the honour of being received by the King on March 27th.

Flight-Commander WILLIAM HENRY RICHARDSON, R.N., of King's Heath, Birmingham, who was killed in action on August 1st last at Smyrna, has left property of the value of £7,148.

Whilst flying in Italy recently, Lieutenant D. DRUMMOND, R.F.C., son of Mrs. Drummond, of Midhurst, and the late Commander Drummond, R.N., of Woking, fell to the ground and broke both legs. Unfortunately it has been found necessary to amputate the left foot.

Flight Sub-Lieutenant A. C. Kermode, R.N., son of the vicar of Haddenham, Ely, and Lieutenant W. H. EVANS, also a flying officer, and organist of the Parish Church, Hampton Wick, have written and composed words and music which are being submitted to the King with a view to their adoption as the official hymn of the Royal Air Force.



THE ALLIES AND STANDARDISATION.

AN Inter-Allied Conference on aircraft standardisation, more especially in regard to materials, arranged by the British Engineering Standards Committee, was recently held in London at the Institution of Civil Engineers. The delegates were welcomed officially by Mr. Churchill, Minister of Munitions.

Sir Maurice Fitzmaurice, vice-chairman of the Committee, welcomed the delegates, and explained that the standardisation of the components of aircraft and aircraft engines was being carried out by the Committee as a war measure for the Department of Aircraft Production of the Ministry of Munitions.

Mr. Churchill said that the thanks of all were due to the Committee for having taken over this very important sphere of action, and for having relieved the Technical Department of the Ministry of Munitions of a heavy and important branch of what would otherwise have been their work. He thought that very little had in reality been lost, and in some respects much had been gained, by not entering on a general scheme of standardisation until sufficient experience had been accumulated to enable such standardisation to reach its maximum effect. A too rigid standardisation in the early stages of development undoubtedly tended to hamper progress and design. Alluding to the gloomy views taken by some people regarding the war, he said that he felt that such people could have no real knowledge or appreciation of the importance and power of aircraft. German resources were incomparably less than those of the Allies, who had the whole world to draw on, and by developing these resources remorselessly it was certainly within the Allies' power to dictate a military decision to their opponents.

Mr. F. G. Diffin, chairman of the American Commission, stated that the United States were wholeheartedly in this war, as Allies and friends, with the sole desire of attaining the best possible results for the common good. He agreed that standardisation could be better effected to-day on the knowledge of what had passed than if it had been instituted earlier, and remarked that the only way to absolute success was through complete unity of action. The work was of tremendous importance, and he firmly believed that, if the fundamentals were kept well to the fore, most effective results could undoubtedly be achieved.

Colonel Dorand, chief of the French delegation, and Deputy Giuseppe Grassi, of the Italian delegation, expressed their Governments' desire most cordially to co-operate in the work of standardisation, which was fully recognised to be of the greatest value to production.

Sir William Weir, Director-General of Aircraft Production, said that he had come to the conclusion that the best results would be achieved by carrying out standardisation under the

direct responsibility of the Engineering Standards Committee, as that body possessed a wealth of experience in the domain of standardisation generally. In particular, he had been influenced by the fact that the Committee, in all its work, had associated itself with the manufacturers and suppliers intimately concerned with the production of the material in question, and that it was able to obtain a realisation of the possibilities of what could actually be done during the war—which was the most important thing at the moment. He felt sure that the conference would be of the highest value to the aircraft programme of the Allies generally.

Sir Henry Fowler, K.B.E., Assistant Director-General of Aircraft Production, and chairman of the sectional committee of the Engineering Standards Committee immediately concerned in carrying out the work of aircraft standardisation in Great Britain, presided over the technical sessions, which were attended by the delegates and by a large number of officers of the departments of the Air Ministry interested in the details of the subjects discussed.

It has been decided to recommend that permanent authoritative committees be instituted in Great Britain, Canada, France, Italy and the United States, in order to maintain continuity of action and to carry forward in the most efficient manner possible the work of co-ordination, the Engineering Standards Committee, for the time being, acting as the distributing centre of this permanent international organisation. It was suggested that the Committee should be constituted as follows:—

FRANCE.—M. le Colonel Dorand (Inspecteur-Général des Etudes et Expériences techniques), Captain Eteve, Captain Pierron, Lieutenant Boislevé.

ITALY.—M. le Commandant Benza (Chef des Services de la provisionnement de l'Aviation Italienne), Député G. Grassi and Lieutenant A. Bonomi.

UNITED STATES OF AMERICA.—Mr. F. G. Diffin (chairman of the Aircraft Standards Board of the American Aircraft Board), Dr. W. F. Durand, Lieutenant-Commander D. Briscoe, Mr. Coker, F. Clarkson, Mr. E. H. Ehrman, Mr. Charles M. Manly, Mr. James Hartness, Dr. A. L. Colby, Mr. F. G. Ericson, Captain A. Tilt, Dr. F. R. Baxter, Lieutenant L. Selden.

GREAT BRITAIN.—Sir Henry Fowler, K.B.E., Commander H. Anstey, Mr. A. F. Berriman, O.B.E., Mr. P. C. Cooper, Colonel M. O'Gorman, C.B., Dr. H. S. Hele-Shaw, Brigadier-General Sir Capel Holden, K.C.B., R.A., Commander C. F. Jenkin, M.B.E., R.N.V.R., Captain G. W. C. Kaye, R.E., Mr. C. C. Paterson, O.B.E., Mr. A. A. Remington, Captain A. A. Ross, Lieutenant-Commander E. S. Saunders, R.N.V.R., Captain T. Worswick.

THE ROYAL AIR FORCE.

Staff Appointments.

It was announced by the Air Ministry in the *London Gazette* of April 2nd, that all officers serving with the Royal Naval Air Service and Royal Flying Corps on March 31st, 1918, or in connection with those services in certain Government departments, in other than the following capacities, are granted temporary commissions in the Royal Air Force, with effect from April 1st, 1918, in ranks which will appear in the Royal Air Force List.

In view of the special circumstances incident to the inception of the Royal Air Force these ranks must be regarded as subject to revision as circumstances may require until confirmed by the actual issue of the commission.

The exceptions are as follows:—

Certain officers of the Royal Navy whose services are only lent temporarily to the Royal Air Force.

Certain Accountant Officers, Royal Navy.

Officers under instruction, other than those holding commissions or appointments in the Royal Flying Corps.

Officers i/c Messing, other than those holding commissions or appointments in the Royal Flying Corps.

Officers serving with cadet units, other than those holding commissions or appointments in the Royal Flying Corps.

Liaison officers, other than those holding commissions or appointments in the Royal Flying Corps.

Medical Officers and Chaplains.

Quartermasters, other than those holding commissions or appointments in the Royal Flying Corps.

The following appointments have been made at the Air Ministry:—

Deputy Master General Personnel.—Lieut.-Col. (Temp. Brig.-Gen.) G. Livingstone, C.M.G., and to retain his temp. rank whilst so employed; April 1st.

Directors.—Major H. S. Ebben, O.B.E., and to be Temp. Col. whilst so employed; Feb. 18th. Lieut.-Col. (Temp. Col.) R. M. Groves, D.S.O., and to be Temp. Brig.-Gen. whilst so employed; April 1st. Lieut.-Col. (Temp. Brig.-Gen.) J. G. Hearson, D.S.O., and to retain his temp. rank whilst so employed; April 1st.

Deputy Directors.—And to be Temp. Col. whilst so employed, if not already holding that rank:—Major (Temp. Lieut.-Col.) C. D. Breese, Major (Temp. Lieut.-Col.) C. L. Courtney, Major (Temp. Lieut.-Col.) T. E. St. C. Daniell, M.C., Major (Temp. Lieut.-Col.) E. H. Davidson, Lieut.-Col. (Temp. Col.) J. D. Mackworth, Major (Temp. Lieut.-Col.) R. H. More, C.M.G. (graded for purposes of pay as S.O., 1st Cl.), Major (Temp. Lieut.-Col.) Hon. W. F. F. Sempill (Master of Sempill); April 1st.

S.O., 1st Class.—And to be Temp. Lieut.-Col. whilst so employed, if not already holding that rank:—Major A. ap Ellis, Major (Temp. Lieut.-Col.) R. H. Austin-Sparks, 2nd Lieut. W. C. Bersey; Lieut.-Col. H. T. A. Bosanquet, Capt. R. B. Bourdillon, M.C., Lieut.-Col. G. T. Brierley, D.S.O., Major (Temp. Lieut.-Col.) G. R. Bromet, D.S.O., Lieut. (Temp. Capt.) H. A. Browne, Major D. H. Cameron, Lieut.-Col. A. D. Carden, Major (Temp. Lieut.-Col.) T. W. C. Carthew, D.S.O., Capt. D. G. H. Clarke, M.C., Major (Temp. Lieut.-Col.) B. S. Foster, Major M. Freeman, Capt. H. G. Gold, Major G. D. Hannay, Major (Temp. Lieut.-Col.) G. R. A. Holmes, O.B.E., Capt. (Temp. Major) C. Jarrott, O.B.E., Lieut.-Col. F. H. Kirby, V.C., Lieut. (Temp. Capt.) O. W. Latimer, Major Sir N. A. R. D. Leslie, Bt., Capt. H. E. A. Lindsay, Capt. T. Lyons, M.B.E., Major P. C. Maltby, D.S.O., Major H. A. Moore, M.C., Major J. T. C. Moore-Brabazon, M.C., Capt. (Temp. Major) W. G. Perrin, Major (Temp. Lieut.-Col.) G. D. Pidgeon, Capt. (Temp. Major) R. C. M. Pink, Lieut.-Col. D. Powell, Lieut. (Temp. Capt.)

R. W. Roylance, Capt. (Temp. Major) W. J. Ryan, M.B.E., Major C. A. Shove, Capt. H. N. Walker, M.C., Lieut.-Col. A. D. Warrington-Morris, Lieut. (Temp. Capt.) H. L. Webb, Lieut. (Temp. Capt.) B. J. Wolfe-Barry; April 1st.

S.O., 2nd Class.—And to be Temp. Major while so employed, if not already holding that rank:—Capt. (Temp. Major) C. R. Abbott, Lieut. (Temp. Capt.) P. Adams, Capt. (Temp. Major) M. H. P. Allen, Capt. (Temp. Major) C. R. Andrews, Lieut. (Temp. Capt.) C. L. Archbold, Lieut. (Temp. Capt.) S. R. Axford, Lieut. (Temp. Capt.) W. E. Aylwin, M.B.E., Capt. L. P. Ball, Lieut. (Temp. Capt.) A. S. Barnfield, Lieut. (Hon. Capt.) F. T. Bridger, Capt. J. W. Burt, Lieut. (Temp. Capt.) F. B. Burton, Capt. W. A. A. Chauncy, Lieut. E. H. Cockburn, Major J. W. Cordingley, Capt. (Temp. Major) G. W. Cranfield, Lieut. (Temp. Capt.) E. S. Cripps, Lieut. (Temp. Capt.) H. Cumming, Lieut. (Temp. Capt.) W. M. Cumming, Major J. G. Currie, Capt. (Temp. Major) J. K. Curwen, Major J. F. Dyer, Capt. P. G. Edge, Major S. O. Everitt, Capt. H. Eves, Capt. W. H. Ewen, Capt. A. W. Farrer, Capt. E. W. Forbes, M.C., Lieut. (Temp. Capt.) C. J. Galpin, D.S.O., Major C. W. Gamble, Capt. F. J. Gray, Lieut. (Temp. Capt.) E. S. Halford, Major J. H. Hills, Major G. Hilton, D.C.M., Capt. (Temp. Major) R. Holloway, Major E. F. Hutchinson, Capt. M. J. C. S. Johnstone, Capt. C. F. Krabbé, Capt. R. D. Law, Lieut. (Temp. Capt.) L. W. W. Lees, Capt. (Temp. Major) E. G. Mackenzie, Lieut. (Temp. Capt.) D. McBirney, Lieut. (Temp. Capt.) H. P. Maybury, Lieut. (Temp. Capt.) H. J. de C. Moore, Capt. (Temp. Major) C. J. Murritt, Lieut. (Temp. Capt.) A. Murray, Capt. A. A. Nathan, Capt. (Temp. Major) J. C. Neilson, Lieut. P. S. J. Owen, Capt. (Temp. Major) W. E. Plaister, Capt. (Temp. Major) W. J. Polyblank, Capt. S. C. Raffles, Major A. C. Robinson, Capt. C. H. Rowe, Capt. J. C. Savage, Lieut. (Temp. Capt.) F. C. O. Shaw, Lieut. (Temp. Capt.) H. A. Smith, M.C., Lieut. (Temp. Capt.) G. E. Stagg, A.H.S. Major Steele Perkins, Capt. (Temp. Major) Hon. E. A. Stonor, Capt. (Temp. Major) T. F. G. Strubell, Capt. R. W. Thomas, Capt. (Temp. Major) E. G. Tovey, Capt. (Temp. Major) G. S. Trewin, Capt. F. W. Trott, M.C., Capt. W. W. Tullis, Lieut. (Hon. Capt.) E. F. Turner, Capt. A. B. Winch, Capt. R. H. Woods, Capt. J. E. L. Wrench, C.M.G.; April 1st.

S.O., 3rd Class.—And to be Temp. Capt. while so employed, if not already holding that rank:—Lieut. D. L. Abbott, Lieut. H. Atkins, Capt. H. F. Atkinson-Clark, Lieut. P. A. Barton, Lieut. (Temp. Capt.) T. G. Baxenden, Lieut. P. M. Beachcroft, Capt. E. W. T. Beck, D.S.O., M.C., Lieut. (Temp. Capt.) W. E. G. Beauforte-Greenwood, 2nd Lieut. (Hon. Lieut.) W. A. Berry, Lieut. A. O. Betts, Lieut. D. Blairman, Capt. A. C. Bolton, Capt. R. C. Boustead, Capt. A. R. Boyle, Capt. C. G. Braithwaite, Capt. Hon. G. St. J. Brodrick, Capt. C. H. Bullock, Lieut. A. L. Butcher, Capt. A. G. Clarke, Temp. Hon. Capt. B. S. Cohen, Lieut. (Temp. Capt.) J. W. Cole, Lieut. R. A. W. Collet, Lieut. F. A. Corbett, Lieut. (Hon. Capt.) R. C. Cox, Lieut. F. C. E. Dimmick, Lieut. T. L. Edwards, Capt. G. Elliott-Lockhart, Lieut. (Temp. Capt.) G. C. Gold, Lieut. J. C. Hanbury-Williams, Lieut. (Temp. Capt.) S. J. Hern, Lieut. (Temp. Capt.) W. Hodgson, Lieut. (Temp. Capt.) F. G. Hogarth, 2nd Lieut. C. W. Hogg, Capt. (Temp. Major) E. Hogg, Lieut. F. J. Hooper, Lieut. C. J. Hosken, Capt. L. S. B. Hull, Lieut. (Temp. Capt.) S. F. Ingram, Lieut. (Temp. Capt.) D. C. James, Lieut. L. H. Jefferson, 2nd Lieut. B. B. Johnson, Lieut. C. G. Jones, 2nd Lieut. H. Jones, Lieut. (Hon. Capt.) W. J. King, Capt. W. A. Laurance, Capt. P. W. Logan, Lieut. G. W. Longstaff, 2nd Lieut. (Hon. Capt.) T. H. McArthur, Capt. A. J. Mann, Capt. (Temp. Major) M. Marsden, Lieut. (Temp. Capt.) N. Martin, Capt. C. Mason, Lieut. C. F. O. Master, Capt. A. McR. Moffat, 2nd Lieut. P. E. Negretti, Lieut. (Temp. Capt.) N. D. Newall, Capt. (Temp. Major) T. F. Norbury, Lieut. (Temp. Capt.) H. N. Nowell, Lieut. T. A. Peddell, Capt. C. F. Rasmusen, Lieut. (Temp. Capt.) F. A. M. Rawes, Lieut. N. F. W. Rockey, Lieut. (Temp. Capt.) J. Rylands, Lieut. A. V. Sale, Lieut. (Temp. Capt.) C. A. Stevens, M.C., Lieut. P. C. Simmons, Lieut. (Temp. Capt.) W. B. Sinclair, Lieut. D. Smith, Capt. P. J. H. Sumner, Lieut. J. E. B. Thornely, Lieut. (Hon. Capt.) P. E. Tickler, Capt. (Temp. Major) O. G. G. Villiers, D.S.O., Capt. E. G. Walker, Lieut. (Hon. Capt.) D. C. Waylen, Capt. L. M. Wells-Bladen, Lieut. (Hon. Capt.) W. T. Williams, Lieut. (Hon. Capt.) C. S. Willmott, Capt. S. M. Wood; April 1st.

S.O., 4th Class.—And to be Temp. Lieuts. whilst so employed, if not already holding that rank:—2nd Lieut. G. F. Allinson, Lieut. B. D. Bellamy, Lieut. (Temp. Capt.) H. Cox, 2nd Lieut. A. G. O. Ellis, Lieut. (Temp. Capt.) R. D. Hallam, Capt. J. F. Hedley, Lieut. H. W. Hern, 2nd Lieut. R. C. J. Hervey, Lieut. C. J. S. Holden, 2nd Lieut. H. B. Langton, 2nd Lieut. (Hon. Lieut.) E. Laurie, Lieut. J. E. Pike, Lieut. J. G. Spencer, and Lieut. H. J. Taplin, and Lieut. J. E. Tod, and Lieut. D. A. Tullis; April 1st.

SUCCESS TO THE R.A.F.

The Vandals may be strong in guns, in men and ammunition,

But Britain has an antidote to beat this Coalition.

It is not ships—though brave and strong the Navy's still
"all there,"

But in the lads who soar aloft and battle in the air!

Then shoulder high the boys who fly—they're out to win the day!

The Germans lack the mettle which these flying lads display.
This casts no ugly slur upon our "Tommies" bearing 'Hell,'
But means we've found the *quickest* way to "bear away the bell."
J.G.H.

Marking Swiss Frontier.

FOLLOWING upon the last violation of Swiss neutrality by the bombing of Porrentruy by unknown aviators, the Swiss Government has proposed to the belligerents that the Swiss frontier be marked at night by elevated coloured lights. France and Germany, it is stated, have already given favourable replies.

Raids on German Towns.

A BERLIN telegram states that at 12.45 p.m. on March 28th enemy airmen attacked the town of Luxemburg. The message adds that, in addition to heavy damage to houses, ten dead have been reported, including a German soldier.

Official reports in the *Leipziger Volkszeitung* state that hostile airmen attacked Zweibücken on March 16th, and that no damage worth mentioning was done, but that one girl was killed and several persons were injured.

At Kaiserlautern on March 17th considerable damage was done to houses, and three men and three women were killed and several persons injured. At Ludwigshafen and Mannheim no important damage was done, but one woman, a child, and two men were killed and ten persons injured.

An Airship Over Crete.

PROBABLY by way of practising before attempting raiding expeditions, a hostile airship was seen cruising northwards over Crete on March 21st. Anyway precautions in the way of reduced lighting are being taken in Athens.

An airship has also been observed along the African coast, and the people in Cairo have been warned of the possibility of raids.

Another German "Star" Killed.

ACCORDING to the *Cologne Gazette*, Flight Lieut. Bethge was killed on March 17th in an aerial fight. He was credited with having shot down twenty machines.

Zeppelins Out Again.

THE Flushing correspondent of the *Handelsblad* reports that two Zeppelins were observed on the morning of April 1st, cruising at a great height.

Aerial Mails in Austria.

ACCORDING to the *Cologne Gazette*, the aerial post between Vienna and Kieff is going well. From March 31st the service on the Vienna-Lemberg section will be open to the public.

The British Air Service

"PER ARDUA AD ASTRA"

Royal Flying Corps (Military Wing).

London Gazette Supplement, March 25th.

The following appointments are made:—
Brigade Commander.—Major (Temp. Lieut.-Col.) C. F. de S. Murphy, D.S.O., M.C., R. Berks. R., from a Wing Comdr., and to be Temp. Brig.-Gen. while so employed; March 6th.

Flight Commander.—Lieut. G. E. H. McElroy, R.A., from a Flying Officer, and to be Temp. Capt. whilst so employed; Feb. 16th.

Flying Officers.—2nd Lieut. (Temp. Lieut.) W. E. Watt, K.E. Horse, S.R., from a Flying Officer (Ob.); Feb. 17th, seniority from Jan. 28th, 1917. Temp. 2nd Lieut. R. J. Housden, Gen. List, from a Flying Officer (Ob.); Feb. 18th, seniority from March 22nd, 1917. 2nd Lieut. J. E. Wase, L'pool R., S.R., and to be sec'd.; Feb. 19th. Temp. 2nd Lieuts. (on prob.) Gen. List, and to be confirmed in their rank:—T. L. McConchie; Dec. 13th, 1917. W. G. G. Kidder; Dec. 16th, 1917. H. A. Whittaker; Dec. 24th, 1917. W. G. Brown; Dec. 31st, 1917. D. F. Taber; Jan. 1st. J. R. Landry; Jan. 4th. N. G. Bray; Jan. 5th. W. A. MacRoberts; Jan. 7th. P. M. Rogers, F. Robinson; Jan. 9th. A. E. McManus, C. Murray; Jan. 10th. R. E. L. McBean; Jan. 11th. A. E. Bruce; Jan. 12th. F. R. Knapp; Jan. 13th. P. D. Taylor; Jan. 14th. W. D. Archer, D. B. Hartle; Jan. 15th. J. M. Dillou; Jan. 16th. W. G. Stevenson; Jan. 17th. S. Hoffman; Jan. 31st. J. H. Tylor; Feb. 10th. T. H. Timmis, D. H. Howitt, H. J. N. Rowe, J. Bradbury, F. L. Collison, L. H. Button, M. Cullen, M. C. Sonnenberg, H. O. Thomas, R. H. B. Stevens, A. R. Porter; Feb. 17th. A. R. Meterkamp, H. Taylor; Feb. 18th. A. Baird, P. J. E. Pullen, G. I. Hole, K. O. Millar, A. W. Thompson, J. E. Doe; Feb. 19th. T. S. Seymour, A. B. Ollerenshaw, C. J. Shackell, W. T. J. Atkins; Feb. 20th. H. G. Cleaver, J. G. H. Crispin, A. A. Ross, A. E. Reed, J. B. Jewell, L. Mendlesohn, J. L. Morrison, I. O. Stead, E. P. Thorne, H. C. Aymer; Feb. 21st. M. G. Epstein; Feb. 22nd. J. E. Reid, W. C. Harveyson, E. P. Pycroft, E. Cartwright, S. S. Woodman, G. L. D. Hall, W. J. Rivett-Carnac; Feb. 23rd. K. M. Smith, J. F. A. Baker, J. A. Chubb; Feb. 24th. G. W. Halstead; March 1st.

Flying Officers (Observers).—Lieut. W. H. Leete, North'd Fus. (T.F.), seniority Dec. 11th, 1917, and to be sec'd.; Temp. 2nd Lieut. H. S. Woodman, N. Staff. R., seniority Dec. 12th, 1917, and to be transd. to R.F.C. Gen. List; 2nd Lieut. E. F. Howard, R.A., seniority Dec. 29th, 1917, and to be sec'd.; Feb. 22nd. Lieut. G. L. Ziegler, W. Ontario R., Canadian Exped. Force, seniority Jan. 3rd. Temp. 2nd Lieuts. (on prob.), Gen. List and to be confirmed in their rank:—R. E. Summerfield, seniority Nov. 5th, 1917. S. G. Williams, seniority Dec. 29th, 1917. W. Rogers; Feb. 20th.

Equipment Officers, 3rd Class.—Temp. 2nd Lieut. J. Hagan, Gen. List; Dec. 22nd, 1917. 2nd Lieut. W. R. Maund, R.E. (T.F.); Jan. 21st. 2nd Lieut. J. D. C. Curtis, M.C., R. Lanc. R., S.R., and to be sec'd.; Feb. 12th. Temp. Lieut. R. J. R. Farrow, att'd. Ches. R., and to be transd. to R.F.C. Gen. List; Feb. 24th. Temp. 2nd Lieuts. (on prob.) Gen. List, and to be confirmed in their rank:—J. E. France; Jan. 10th. A. de Sandoval; Feb. 16th.

Schools of Instruction.—School of Military Aeronautics.

Chief Instructor (graded as a Squadron Commander).—Lieut. (Temp. Capt.) G. G. Hubbard, S.R., from an Instr. (graded as an Equipment Officer, 1st Cl.), and to be Temp. Major whilst so employed; Jan. 2nd.

Instructor (graded as an Equipment Officer, 1st Class).—Lieut. (Temp. Capt.) F. R. Hardie, Hrs., from an Asst. Instr. (graded as an Equipment Officer, 2nd Cl.); Jan. 2nd.

Assistant Instructor (graded as an Equipment Officer, 2nd Class).—Temp. Lieut. A. E. Turner, M.C., Gen. List, a Flying Officer (Ob.); Jan. 2nd.

General List.—Temp. 2nd Lieut. P. V. Tempest resigns his commission on appointment to R.N.A.S.; March 2nd. To be Temp. 2nd Lieuts. (on prob.):—Private P. M. Rogers, from A.S.C.; Dec. 6th, 1917. 1st Cl. Air Mech. F. Robinson, from R.F.C.; Dec. 15th, 1917.

Supplementary to Regular Corps.—Lieut. J. V. Nash relinquishes his commission on account of ill-health, and is granted the hon. rank of Lieut.; March 26th.

London Gazette Supplement, March 26th.

The following appointments are made:—

Staff Officer, 3rd Class (graded as a G.S.O., 3rd Grade, at the War Office).—Lieut. (Temp. Capt.) F. A. M. Rawes, R.F.A., S.R., from an Adj., and to retain his temp. rank while so employed, vice Lieut. (Temp. Capt.) H. A. Fordham, North'd Fus.; March 3rd.

Flight Commanders.—Temp. Lieut. J. G. Coombe, Gen. List, from a Flying Officer, and to be Temp. Capt. whilst so employed; Feb. 18th. Lieut. (Temp. Capt.) I. H. D. Henderson, M.C., Arg. and Suth'd Highrs., from a G.S.O., 3rd Grade, and to retain his temp. rank while so employed, with seniority from July 1st, 1916; 2nd Lieut. (Temp. Lieut.) A. A. Denison, M.C., York. and Lanc. R., from a Flying Officer, to be sec'd., and to be Temp. Capt. while so employed; March 1st.

Flying Officers.—Temp. Lieut. H. Oldham, Gen. List; Sept. 14th, 1917 (substituted for the notification in the Gazette of Nov. 20th, 1917); Lieut. F. W. Mundy, Yeo. (T.F.), and to be sec'd.; Feb. 15th. Temp. Lieut. C. Curtis, Gen. List, from a Flying Officer (Ob.), seniority from July 31st, 1916; Temp. Lieut. F. M. Miller, Gen. List, from a Flying Officer (Ob.), seniority March 3rd, 1917; Temp. 2nd Lieut. H. W. Holmes, R.E.; Temp. 2nd Lieut. H. M. de Bathe, Gen. List; Feb. 17th. Lieut. (Actg. Capt.) T. St. C. G. Taylor, Lond. R. (T.F.), to be sec'd., and to relinquish his actg. rank; 2nd Lieut. C. D. Proudfoot, Yeo. (T.F.), and to be sec'd.; Temp. 2nd Lieut. A. Perren, att'd. E. Surr. R., and to be transd. to R.F.C., Gen. List; Feb. 18th. Temp. 2nd Lieut. A. Alexander, att'd. R. Sc. Fus., and to be transd. to R.F.C., Gen. List; Temp. 2nd Lieut. F. Green, att'd. D. of Corn. L.L., and to be transd. to R.F.C., Gen. List; Temp. Lieut. O. D. Greeman, M.G. Corps, and to be transd. to R.F.C. Gen. List; Feb. 19th. From Flying Officers (Ob.):—Capt. J. C. Perkins, W. York. R., S.R., seniority from Aug. 1st, 1916; Lieut. I. Welby, M.C., Lanc. R. (T.F.), seniority from Feb. 23rd, 1917; Temp. Lieut. D. F. Woodford, Gen. List, seniority from March 20th, 1916; Feb. 20th. 2nd Lieut. E. J. Riley, Lond. R. (T.F.), and to be sec'd.; Feb. 21st. Temp. 2nd Lieuts. (on prob.) Gen. List, and to be confirmed in their rank:—J. I. Maitland; Dec. 16th, 1917. S. W. Crane; Dec. 25th, 1917. H. T. B. Lockwood; Dec. 27th, 1917. R. E. Caverhill-Cameron; Jan. 1st. C. R. Borkland; Jan. 4th. R. McPhee; Jan. 5th. M. C. Howell; Jan. 6th. E. N. Ruffe, C. R. Titus; Jan. 7th. K. H. Crane; Jan. 10th. F. R. Girardot; Jan. 13th. F. W. H. Martin; Jan. 21st. W. J. P. Jenner; Jan. 24th. H. S. Hennessey; Feb. 13th. N. Knight; Feb. 14th. C. R. Henderson; Feb. 16th. G. B. Knight; Feb. 17th. R. S. Winnepenny, C. F. Whistance, C. F. Fyfe, L. M. Gerson, G. R. Hicks, C. G. Carter, F. C. U. Dymant, A. W. Vanderbyl, J. B. Coward, K. A. Ranney, A. Leiper, C. W. Turner; Feb. 18th. L. W. King, N. Garland, C. A. Posey, D. S. Ogilvie, R. Cook, J. T. Denman, W. A. Curtis, S. K. Isaac, T. Watson, S. P. Kerr; Feb. 19th. T. C. Story, R. S. Craig, J. E. Faid; Feb. 20th. R. C. Milne; Feb. 22nd. H. P. Mallett, J. Stuart, E. A. Peters; Feb. 23rd. L. Childs, C. W. Lockett, R. G. Pierce, F. J. Suckling; Feb. 24th. R. I. Metcalfe, W. Grossart, W. E. Macpherson, K. L. Warrington; Feb. 25th. E. Haigh, J. C. Orr; Feb. 26th. A. N. Vose, A. W. Aird; Feb. 27th. J. L. Davies, St. G. C. Payant;

Feb. 28th. The appointments of the following Temp. 2nd Lieuts., Gen. List, are ante-dated to Oct. 13th, 1917:—J. S. Common, W. H. Smith. The appointment of Temp. 2nd Lieut. W. H. Hall, Gen. List, is post-dated to Sept. 29th, 1917.

Flying Officers (Observers).—2nd Lieut. H. F. Morford, Yeo. (T.F.), and to be sec'd.; Jan. 14th, seniority from Sept. 13th, 1917. Lieut. E. A. C. Lawson, R.F.A. (T.F.), seniority from Nov. 20th, 1917, and to be sec'd. Seniority from Nov. 21st, 1917:—Temp. Lieut. G. W. Holton, A.S.C., and to be transd. to R.F.C., Gen. List; 2nd Lieut. R. W. H. Grasdorff, S. Wales Bord., S.R., and to be sec'd.; 2nd Lieut. M. H. Ely, Yeo. (T.F.), and to be sec'd.; Temp. 2nd Lieut. (on prob.) E. H. S. Morris, Gen. List, and to be confirmed in his rank; Feb. 25th.

Balloon Commanders (graded as Balloon Officers).—From Balloon Officers:—2nd Lieut. D. A. J. Prendergast, R.F.A., S.R., and to be Temp. Lieut. while so employed; Jan. 10th. Lieut. R. A. Skelton, R.G.A., S.R.; Feb. 16th.

Balloon Officer.—Temp. Capt. G. St. Noble, Gen. List; Feb. 1st.

Equipment Officers, 1st Class.—Temp. Lieut. H. L. Crichton, Gen. List, and to be Temp. Capt. while so employed; Nov. 16th, 1917 (substituted for the notification in the Gazette of Dec. 7th, 1917). 3rd Cl. Temp. 2nd Lieut. W. Gornall, Lab. Corps, and to be transd. to R.F.C. Gen. List; Jan. 1st. Temp. 2nd Lieut. H. F. Emerton, Lab. Corps, and to be transd. to R.F.C., Gen. List; Jan. 24th. Lieut. G. A. Tilly, R.W. Surr. R. (T.F.), and to be sec'd.; Lieut. W. C. Hyde, Middx. R. (T.F.), and to be sec'd.; Jan. 28th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—J. R. Salmon; Dec. 8th, 1917. G. Glen, H. B. Long, J. Armitage; Jan. 1st. A. G. Edmonds; Jan. 11th. W. W. Fyfe; Jan. 24th. R. Braine, W. C. Burns; Jan. 28th.

Experimental Officer, 3rd Class (graded as an Equipment Officer, 3rd Class).—2nd Lieut. C. H. Shelton, R.A., and to be sec'd.; Jan. 5th.

Schools of Instruction.—School of Technical Training.

Part Commanders.—Major A. W. Colley, N. Lan. R.; Nov. 24th, 1917. Capt. Sir J. Eardley-Wilmot, Bt., Rif. Brig., S.R., and to be Temp. Major while so employed; Dec. 6th, 1917.

General List.—Qmr. and Hon. Lieut. T. G. Rae, S. Afr. Engrs., to be Temp. Lieut.; July 25th, 1917, seniority from March 1st, 1915. Temp. 2nd Lieuts. J. H. A. Byrne is dismissed the service by sentence of a General Court-martial; Feb. 13th. Temp. 2nd Lieut. R. P. Bliss resigns his commission to resume his medical studies; March 27th. Temp. 2nd Lieut. F. H. Aldridge relinquishes his commission on account of ill-health contracted on active service, and is granted the hon. rank of 2nd Lieut.; Temp. 2nd Lieut. S. A. Sadler relinquishes his commission on account of ill-health; March 27th. Cpl. A. S. Morgan, from R.F.C. (since killed in action), to be Temp. 2nd Lieut.; April 22nd, 1917. To be Temp. 2nd Lieuts. (on prob.):—E. A. Sullivan; Dec. 3rd, 1917. S. A. Peok; Jan. 28th. Co. Qmr.-Sgt. D. F. Hollins, from School of Musketry; Feb. 16th. Qmr.-Sgt. R. Betts, from R.W. Surr. R.; Feb. 27th. A. K. Murray; March 11th. Cds. to be Temp. 2nd Lieuts. (on prob.):—R. Bolton, E. Lawson; Feb. 24th. G. A. Allenby, A. J. Bishop, H. D. Buchanan, A. Carter, J. E. Cave, F. W. Chadwick, H. C. Charnley, C. E. Crisp, M. P. Dalrymple, R. W. Davidson, H. Davies, W. G. Duncan, J. Forsyth, C. R. French, J. C. Gleave, J. L. Goss, R. V. Hepburn, W. W. Hewitt, P. F. Hilborn, L. A. Hooper, W. Jacklin, H. S. Lindfield, E. R. Ludlow, C. Leveick, A. W. G. Luke, J. G. B. Macmillan, E. R. Moore, A. W. Murray, B. J. O'Mera, T. D. Raby, S. H. Smith, H. H. Stephens, F. W. F. Turner, C. G. Weir, I. A. Bailey, C. W. Griffin, T. C. Lewis, N. L. Mayle, J. J. W. Nemes, R. T. Smith; Feb. 27th. Lieut. D. A. M. MacManus, R. Innis. Fus., to be Temp. Capt. (without the pay or allowances of that rank), whilst actg. as Adj., vice Temp. 2nd Lieut. (Temp. Capt.) H. Waddington, Manch. R., who relinquishes his temp. rank; Feb. 20th. 2nd Lieut. P. M. Murray, R.F.C., to be Temp. Lieut. while employed under Ministry of Munitions; Jan. 12th.

General List (R.F.C.).—Cdt. John Hillmoor Southey to be Temp. 2nd Lieut. (on prob.); Aug. 2nd, 1917 (substituted for notification in Gazette, Aug. 24th, 1917, and subsequent issues of Gazette describing name as John Stillmoor Southey).

Memorandum.—2nd Lieut. P. M. Manry, R.F.C., to be Temp. Lieut. while employed under Ministry of Munitions; Jan. 12th.

London Gazette Supplement, March 27th.

Squadron Commander.—Capt. T. F. Rutledge, M.C., S.R., to revert from a Wing Comdr., to relinquish the rank of Temp. Lieut. Col., and to be Temp. Major while so employed; March 8th, seniority from May 15th, 1916.

The following appointments are made:—

Flight Commanders.—From Flying Officers:—Capt. S. R. Penrose-Welsted, R. Ir. Regt.; Feb. 7th. Temp. Lieut. W. H. Park, Gen. List, and to be Temp. Capt. while so employed; Feb. 26th. Capt. (Hon. Lieut.) N. Deakin, Yeo. (T.F.); March 2nd. And to be Temp. Capt. while so employed:—Temp. 2nd Lieut. F. W. Wells, Gen. List, Temp. 2nd Lieut. E. Waterlow, Gen. List; March 8th.

Flying Officers.—2nd Lieut. E. H. Richardsen, R. War. R., and to be sec'd.; Oct. 13th, 1917 (substituted for notification in Gazette of Nov. 19th, 1917). Temp. Lieut. F. R. Cock, Gen. List, from a Flying Officer (Ob.), seniority Dec. 15th, 1916. Lieut. H. S. Newman, Welsh R. (T.F.), and to be sec'd.; Temp. 2nd Lieut. (on prob.) L. Hamilton, R.E., Temp. 2nd Lieut. J. W. Lee, att'd. S. Wales Bord., and to be transd. to R.F.C., Gen. List; Jan. 17th. Temp. 2nd Lieut. K. M. H. Marriott, W. Rid. R., and to be transd. to R.F.C. Gen. List; Temp. 2nd Lieut. D. W. Stuart, Gen. List; Jan. 18th. Temp. Lieut. R. C. S. Bowker, R.A., and to be transd. to R.F.C., Gen. List; Temp. 2nd Lieut. P. A. H. De Metz, R. Highrs., and to be transd. to R.F.C., Gen. List; Temp. 2nd Lieut. W. S. Featherstonhaugh, Gen. List; Temp. 2nd Lieut. R. J. W. Palmer, Gen. List; Temp. 2nd Lieut. J. Wood, Gen. List; Jan. 19th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—R. S. Wood; Dec. 14th, 1917. J. A. Jackson; Dec. 19th, 1917. J. T. Kirkland; Dec. 24th, 1917. J. W. Pearson; Jan. 6th. R. H. Lefebvre; Jan. 7th. O. J. Lange; Jan. 8th. F. T. S. Sehl; Jan. 14th. W. E. Buchan, R. A. Kirkpatrick; Jan. 15th. R. F. McRae; Jan. 16th. W. Haigh; Jan. 19th. R. Kilpatrick; Jan. 21st. D. J. Russell; Jan. 23rd. A. Sevastopulo, H. F. Letten; Feb. 16th. E. W. Simpson; Feb. 18th. E. O. Fuller; Feb. 23rd. A. J. Coleman; Feb. 24th. G. J. Carroll, S. Symonds, P. J. Knox; Feb. 25th. J. R. Anderson, P. W. R. Arundel, A. F. James, G. B. Leslie, S. C. M. Pontin, T. Ratcliffe, H. B. Winton, G. E. Dobeson, R. G. Dobeson; Feb. 26th. H. Nelson, A. F. Corker, L. G. Ward, H. A. Cole, N. H. Hamley, H. W. Morrison, C. L. Grimwood; Feb. 27th. G. A. Sweet; March 2nd.

Equipment Officers, 3rd Class.—2nd Lieuts. H. Robinson, J. M. Knight, E. R. Wood, and F. V. Wright; March 1st. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—J. A. Cundy, W. G. Mantell, T. Stevenson, R. J. Tallyn, C. Armand; March 1st.

General List.—Temp. 2nd Lieut. T. E. Clinton is dismissed the Service by sentence of a General Court-martial; March 1st. Pte. (Actg. L.-Cpl.) D. W. Stuart, from Yeo. (T.F.), to be Temp. 2nd Lieut.; Dec. 10th, 1917. To be Temp. 2nd Lieuts. (on prob.):—Sgt. G. A. K. Robertson, from Works Co.; Flight Sgt. J. S. Viner, from R.F.C.; Feb. 27th. Cadet G. C. R. List, from R.F.C.; Cadet E. G. Walker, from R.F.C.; March 11th.



London Gazette Supplement, March 28th.

Attached to Headquarters Units.

Brigadier Commander.—Bt.-Col. (Temp. Maj.-Gen.) W. S. Brancker, R.A., and to retain his temp. rank whilst so employed; Oct. 19th, 1917.

The following appointments are made:—

Flight Commanders.—From Flying Officers, and to be Temp. Capt. while so employed: 2nd Lieut. (Temp. Lieut.) L. D. Baker, R. Dub. Fus., S.R.; Feb. 8th. Temp. 2nd Lieut. M. M. McLeod, Gen. List; March 10th.

Flying Officers.—Temp. 2nd Lieut. A. F. Cotton, Gen. List; Dec. 26th, 1917. 2nd Lieut. G. J. Farmer, Lond. R., T.F., from a Flying Officer (Observer); Feb. 18th, seniority Jan. 30th, 1917. Capt. A. E. Sharling, Quebec R., Canadian Exped. Force; Lieut. L. C. Gilmour, Saskatchewan R., Canadian Exped. Force; Feb. 19th. 2nd Lieut. C. J. Thomsen, Sworder, Canadian Exped. Force; Feb. 23rd. Lieut. E. G. Jones, Saskatchewan R., Canadian Exped. Force 2nd Lieut. R. D. G. Pizey, R.F.A., S.R.; Feb. 25th. Temp. 2nd Lieuts. (on prob.) Gen. List, and to be confirmed in their rank:—R. C. Bennett, A. Pickin, C. W. Harman, R. T. Irvine, P. J. Williams, J. R. Johnstone, A. Morgan, C. K. Flower, S. J. Furze, S. Fine, J. C. Robinson, J. C. Secombe, A. Williamson, H. S. Johnson, E. D. Salthouse, J. Turner; Feb. 27th. E. R. Pridaux, V. N. Bonnes, G. H. Patman, A. Buchanan, T. H. Wood, C. A. B. Beattie, D. J. T. Mellor, W. E. Pepper, F. A. Coutts, M. J. Du Cray, F. L. C. Link, A. Hamilton, A. Eddleston, G. A. Hayward, E. C. Hoar; Feb. 28th.

Balloon Officer.—Temp. Maj. E. C. Carver, D.S.O., Gen. List; March 7th.

Equipment Officers, 3rd Class.—Temp. 2nd Lieut. A. E. Franklin, Gen. List, from a Balloon Officer; Jan. 30th. Capt. H. E. Paquin, Quebec R., Canadian Exped. Force, from a Flying Officer; Feb. 12th. 2nd Lieut. E. T. A. Jones, E. Lan. R., T.F., and to be sec'd.; Feb. 24th. 2nd Lieut. H. Butler; March 1st. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: E. A. Sullivan; Jan. 7th. H. C. Coutts; Jan. 28th. D. B. Gunn; Feb. 16th. J. Bushell, A. G. Ruthven, A. B. Staples; Feb. 24th.

General List.—Temp. Lieut. (Temp. Capt.) C. A. Bourne resigns his commission; Sept. 15th, 1917; the date of the resignation of his commission by Temp. 2nd Lieut. W. C. Faull is March 16th and not as in the *Gazette* of March 1st. The Christian names of Temp. 2nd Lieut. (on prob.) Donbvah Laurier Sisley are as now described and not as in the *Gazette* of Sept. 28th, 1917. To be Temp. 2nd Lieuts. (on prob.): A. F. Platt; Jan. 31st. F. A. Flynn; Feb. 2nd. M. De W. Bamberger, P. R. Beare, A. C. Forrest, W. C. Goudie, W. A. Hallgren,

G. W. Hawken, J. E. Jennings, C. I. Lancefield, S. Maltby, K. A. Nelson, W. J. Penningroth, H. C. Rath, E. G. Robertson, W. J. Sampson, R. W. Simpson, G. W. Sweny, F. C. Tanner, M. G. Vande-Water, R. Viall, T. Whitman, R. B. Wiggins; Feb. 3rd. L. W. Wilson; Feb. 4th. 3rd Cl. Air Mech. J. C. McInnes, from R.F.C.; Sergt. G. A. Slater, from R. War. R.; Sergt. S. E. White, from Yeo., I.F.; Feb. 27th. Sergt. A. Dunderdale, from R.F.C.; March 6th. Cadets from R.F.C. to be Temp. 2nd Lieuts. (on prob.): W. A. Payne, W. A. Russell; Feb. 27th. J. H. Ashton, S. K. Barnes, W. Barrett, W. F. Conway, H. W. Coverley, E. Dear, A. B. G. Gunn, T. Hall, J. A. Hinchliffe, F. C. James, J. H. Peters, H. Shoosmith, S. Vaughan, C. D. Watt, A. C. Whittle, J. S. Wilson; March 11th.

Aeronautical Supplies Directorate, M.M.

London Gazette Supplement, March 28th.

The following are granted temp. rank while employed in the Aeronautical Supplies Directorate, Ministry of Munitions; Sept. 28th, 1917: As Brig.-Gen., Bt. Lieut.-Col. W. Alexander, D.S.O., R. Highrs., T.F. As Lieut.-Col., Maj. I. B. Davson, Yeo., T.F.; Temp. Maj. A. E. J. Reiss, Gen. List; Temp. Capt. R. H. Brand, Gen. List; Capt. G. W. Williamson, M.C., Manch. R., S.R. As Capt., 2nd Lieut. (Temp. Lieut.) C. L. Hardy, R.F.C., S.R.; Lieut. D. M. Greig, Suff. R.; 2nd Lieut. (Temp. Lieut.) F. A. Woolfe, R.F.C., S.R.; Temp. Lieut. F. J. Musselwhite, Gen. List; 2nd Lieut. (Temp. Lieut.) H. L. U. Clark, R.F.C., S.R.; Temp. Lieut. D. Munro, attd. High. L.I.; Temp. Lieut. G. H. Creighton, R.F.C., Gen. List; 2nd Lieut. J. H. Cotton, R.F.C. S.R.; 2nd Lieut. (Temp. Lieut.) S. Blackley, R.F.C. S.R.; 2nd Lieut. H. F. L. Dixon, R.F.C. S.R.; 2nd Lieut. S. A. Marples, R.G.A., S.R.; Sec. Lieut. (Temp. Lieut.) F. W. Elstub, R.F.C., S.R.; 2nd Lieut. (Temp. Lieut.) G. Dennison, R.F.C., S.R.; 2nd Lieut. W. Park, R.F.C., S.R.; 2nd Lieut. R. Waddell, R.F.C., S.R.; 2nd Lieut. A. W. Gillespie, R.F.C., S.R.; Temp. Lieut. J. M. Macauley, Gen. List; Lieut. C. H. Johnson, R.E., T.F.; 2nd Lieut. (Temp. Lieut.) A. Burgess, R.F.C., S.R.; 2nd Lieut. (Temp. Lieut.) W. Sillem, R.F.C., S.R.; 2nd Lieut. W. E. Nuttall, R.F.C., S.R.; 2nd Lieut. R. H. Sperling, T.F. Res.; 2nd Lieut. E. H. Wilding, R.F.C., S.R.; 2nd Lieut. W. C. Clark, 2nd Lieut. (Temp. Lieut.) L. G. Fenner, R.F.C., S.R.; 2nd Lieut. (Temp. Lieut.) L. Crooks, R.F.C., S.R.; 2nd Lieut. (Temp. Lieut.) H. B. Dresser, R.F.C., S.R.; Lieut. A. G. Griggs, R.F.C., S.R.; Temp. Lieut. M. F. W. Sampson, Gen. List; 2nd Lieut. S. V. Green, R.F.C., S.R.; 2nd Lieut. J. C. Murray, R.F.C., S.R.

AIRCRAFT WORK AT THE FRONT.

OFFICIAL INFORMATION.

British.

Italian Front.—Our aircraft have fully maintained their superiority in the air, and have destroyed eight enemy machines and brought one down out of control, without loss to themselves.

War Office, March 23rd.

Admiralty, March 25th.

"During offensive patrols carried out by Royal Naval Air Service machines from Dunkirk, from March 21st to 24th, 10 enemy machines were destroyed and seven shot down out of control. A hostile balloon was also brought down in flames. Three bombing raids were carried out on Bruges Dock, and many direct hits were obtained on sheds on the quays. Bombs were also seen to burst close to enemy destroyers. Several hostile torpedo-boats and a destroyer and an armed trawler were attacked. One of our aeroplanes was forced to land in the sea, the pilot being picked up by a French destroyer. With this exception all our machines returned safely from these operations."

War Office, March 25th.

Palestine Front.—An enemy formation of five aeroplanes was attacked by one of our patrolling machines, which shot down three out of control.

"Very effective bombing and machine-gun operations were carried out by R.F.C. and Australian Flying Corps units, many direct hits being obtained on the enemy's troops, transport, and camps, whilst trains on the Hedjaz Railway were attacked successfully."

General Headquarters, March 25th.

"On the 24th inst. activity in the air was very great. The day was remarkable for the weight of bombs dropped by our aeroplanes, the number of flights that took place, and the many thousands of rounds fired by our pilots from low altitudes upon the enemy troops. The progress of the battle was reported by our aeroplanes, and our artillery were informed of suitable targets. Masses of hostile troops concentrated in the battle area were caught by our low-flying machines both with bombs and machine gun fire. Over 1,700 bombs were dropped during the day on different targets, which included Bruges docks, Aulnoye railway station, a large camp south-east of Cambrai, high-velocity guns, and hostile reinforcements. The fighting was the most severe so far experienced. Our aeroplanes brought down 45 of the enemy machines and drove 22 down out of control. Two other hostile machines were shot down by our anti-aircraft guns. Ten of our machines are missing."

"After dark our bombing aeroplanes again concentrated their efforts upon bombing and attacking with machine-gun fire the enemy's troops opposite the battle-front. Bruges docks and an aerodrome midway between Tournai and Mons used by hostile night-flying machines were also bombed. Over 14 tons of bombs were dropped. All our machines returned."

"During the night one of the enemy's large bombing machines landed behind our lines."

"Following on the successful daylight raid on Mannheim other objectives in Germany were attacked. During the night half a ton of bombs were dropped by us on the railway stations at Cologne, where a fire was started. Over a ton was distributed between Luxembourg railway station, where a fire was started, and Courcelles railway station (east of Metz). Two tons of bombs were dropped on Metz railway station. Direct hits were obtained on a bridge south-east of the town and on a stationary train, which was set on fire. A large fire was started on this occasion also. Other machines dropped a ton of bombs on Thionville railway station, where a moving train was derailed and a fire caused. All our machines returned."

General Headquarters, March 26th.

"On the 25th inst. our aeroplanes were employed almost entirely in bombing the enemy's troops and transport massed in the areas behind the battle front and in attacking them with machine-gun fire from a low height. A total of 22 tons of bombs were dropped by us in this work, and over 100,000 rounds were fired from machine-guns. All our pilots reported that the ground targets offered by the enemy surpassed description, and that they were able to drop their bombs with accuracy and to fire with effect right into the centre of infantry battalions in close formation and into columns of cavalry and transport. A certain amount of fighting in the air took place, but it was less intense than on the previous day. Thirteen hostile machines were brought down by our aeroplane and 10 were driven down out of control. Eight of our machines are missing. The majority of our casualties were caused to low-flying machines by fire from the ground. During the night our night-flying aeroplanes continued to bomb and to attack with machine-gun fire the enemy's troops in his forward areas and his transport on the roads leading to the front."

General Headquarters, March 27th.

"Great concentrations of our aeroplanes were carried out to-day over points

threatened by the enemy, and masses of our machines attacked with machine-gun fire and bombs the enemy's infantry and cavalry. Thirty tons of bombs were dropped by us, and hundreds of thousands of rounds of ammunition were fired into the enemy. While this fighting was maintained throughout the day, our infantry aeroplanes kept watch along the front and reported the changes in the situation as they occurred. Twenty hostile machines were brought down in air fighting, and two other German aeroplanes were shot down by our anti-aircraft guns. Twelve of our aeroplanes are missing."

"During the night our night-flying squadrons kept up a continuous attack upon the enemy's troops in Bapaume, Cambrai, and Péronne. Twenty-five thousand rounds were fired by them, and 24 tons of bombs were dropped on important centres of the battle front. In addition, four tons of bombs were dropped on Valenciennes railway station, through which the enemy's troop trains were passing on their way to the front."

War Office, March 27th.

"One enemy aeroplane was destroyed in aerial combat."

General Headquarters, March 28th.

"On the 27th inst. low-flying was again carried out by large bodies of our aeroplanes, while our infantry machines continued the work of reporting the position of our battle line. Over 30 tons of bombs were dropped by us, and a quarter of a million rounds of ammunition were fired from a height that ensured accuracy on different targets. Severe casualties are known to have been inflicted on the enemy, and the bringing up of his troops and ammunition was delayed. Twenty-four German machines were brought down in air fighting, and seven others were driven down out of control. Two hostile observation balloons were also destroyed. Nineteen of our machines are at present missing, but a proportion of these are believed to have landed on outside of the line. Very heavy fire directed against our machines from the ground accounted for the greater portion of our casualties."

"During the night the bombing of Bapaume, Bray and Peronne was continued with the utmost vigour. Over a thousand bombs were dropped, and thousands of rounds of ammunition were fired at good targets, which were plentiful and easy to see in the moonlight. Our pilots saw their bombs bursting in the middle of columns of troops and transport and on encampments. Four of the aeroplanes employed are missing."

"On the 27th inst. the Sablon station at Metz was bombed. Well over a ton of bombs were dropped; good bursts were seen on the sidings and alongside the railway."

"On the 28th inst. our machines carried out a successful raid on the station at Luxembourg. Twenty-one heavy bombs were dropped, and several were seen to burst on the objectives. All our machines returned from both raids."

War Office, March 28th.

"Palestine.—Our aeroplanes shot or drove down four enemy machines, and heavily bombed the enemy troops, transport, and trains on the Hedjaz railway, many direct hits being observed. During the night of the 27th successful raids were carried out at points between the Jerusalem-Nablus road and the Jordan Valley."

War Office, March 29th.

"Salonica.—On the morning of March 20th an enemy aeroplane was driven down behind our lines in an aerial fight on the Struma front. The pilot and observer were taken prisoners."

"On the morning of March 24th our machines bombed the aerodrome at Drama with great success; 57 bombs burst on the aerodrome, and four hangars were badly damaged."

General Headquarters, March 29th.

"On the 28th inst. our aeroplanes carried on their attacks with bombs and machine-gun fire on hostile troops on the battle front. The majority of these attacks took place south of the Somme, in which area large concentrations of the enemy's troops were constantly reported. The work was continued till dark in spite of rain storms and low clouds, a total of 26 tons of bombs being dropped, and nearly a quarter of a million rounds of ammunition fired by our pilots upon different targets. Artillery work and photography were also carried out as usual on the quieter parts of the front. There was not much fighting, considering the number of British machines in the air, but on the battle-front fire from the ground was again very heavy. Nine German machines were brought down and five others driven down out of control. In addition, two hostile machines were shot down by fire from the ground. Twelve of our machines are missing."

General Headquarters, March 30th.

"During the morning of the 29th inst. low clouds and rain greatly interfered

with flying, but, in spite of the weather, valuable work was again accomplished by our aeroplanes. Our machines were concentrated upon the battle front south of the Somme, where observers had previously reported large columns of the enemy advancing from the east. Many bombs were dropped and thousands of rounds of ammunition were fired upon these columns. A good deal of fighting took place, the enemy's low-flying machines being particularly active in this area. Nine hostile aeroplanes were brought down and two others were driven down out of control. Two of our machines are missing.

"During the night over 12 tons of bombs were dropped on Bapaume and on roads in the vicinity, and also on roads and villages east of Arras. Direct hits were obtained on dumps and transport and on the railway line. One of our machines has not yet been located.

General Headquarters, March 31st.

"After midday on the 30th inst. the weather completely broke, but, in spite of driving rain, our pilots continued to take part in the battle south of the Somme, and dropped bombs and used their machine guns until a late hour on the targets offered by the enemy. Useful reports as to the location of hostile troops were brought in, and in the northern area of the battle a certain amount of work in conjunction with our artillery was carried out. There was heavy fighting in the air between our low-flying machines and those of the enemy. Twelve hostile aeroplanes were brought down and three others driven down out of control. One hostile balloon was destroyed by our machines, and another two German aeroplanes were shot down by our anti-aircraft guns. Five of our machines are missing."

War Office, March 31st.

"*Palestine.*—Two hostile aeroplanes were destroyed."
"*Italian Front.*—The success of the Flying Corps has continued. Ten enemy aeroplanes have been destroyed and four driven down out of control since my last report, with a loss of one to ourselves. In this total is included seven machines destroyed and three driven down out of control on March 30th. On this date a patrol of three British machines attacked 19 enemy aeroplanes over an enemy aerodrome east of the Piave, destroying six of them. Since their arrival in Italy the Flying Corps have now destroyed 83 enemy machines and only lost 10 themselves."

General Headquarters, April 1st.

"On March 31st our observation balloons and aeroplanes were active, the good visibility enabling the former to carry out useful work in conjunction with the artillery. The activity of our aeroplanes was chiefly centred south of the Somme. A close watch was kept on the enemy's movements in this area, and a large column of hostile troops or transport seen was bombed and engaged with machine gun fire. Very little fighting took place in the air. Two hostile machines were brought down and one other was driven down out of control. Four of our machines are missing. Four of our machines previously reported missing have since returned to their units."

"Night flying was not possible till after mid-night owing to low clouds. From midnight until dawn our bombing machines were constantly at work. Twenty-four tons of bombs were dropped on the railway stations at Douai, Cambrai, Bapaume, Rosières, and Thourout, and on the docks at Bruges. Troops and transport in the neighbourhood of Bapaume and Chaules were also attacked with bombs and machine gun fire. All our machines returned."

French.

"During the period from March 11th to March 26th 26 German aeroplanes and one captive balloon were brought down by our pilots. In addition 19 enemy machines were seriously damaged and fell in their own lines. On March 22nd five German aeroplanes were brought down or seriously damaged in air fighting. During the night of March 22nd-23rd our bombing squadrons dropped 16,000 kilogrammes of projectiles on the establishments, cantonments, and stations of the enemy's zone, where heavy damage was observed."

Paris, March 23rd.

"Between February 15th and March 15th our air forces have intensified their action, 142,000 kilogrammes (142 tons) of bombs having been dropped on aerodromes, munition depôts, supply dumps, and groups of factories. Our chasers have shown much keenness. Fifty-two enemy machines were brought down or set on fire, 50 others were disabled. On our side we lost 29 machines, 19 of them on enemy territory. Our reconnoitring machines have been specially vigilant; 652 flights for photographic purposes have been carried out, in the course of which 10,680 views were taken. Our observation balloons were on duty for 1,850 hours. Our aeroplanes carried out 12,105 flights on the field of battle. Air fighting has been developing in our favour, owing to the improvements effected in our material and the heroism of our airmen."

"*Salonica.*—In spite of the unfavourable atmospheric conditions, the Allies' aviators carried out numerous bombardments along the whole front. An enemy aeroplane was brought down in an air fight in the region of the Struma."

Paris, March 27th.

"*Salonica.*—Allied airmen successfully bombed the enemy depôts of Demir-hissar and the encampments to the south-east of Resna."

Paris, March 28th.

"In the period from March 23rd to March 26th our aviation service took part in the battle in conditions that were particularly costly to the enemy. Our infantry aeroplanes, our bombing and chasing crews, as well as our photographers and observers, distinguished themselves by their courage and endurance, and did very hard work, both by day and night. On the 23rd alone one of our groups of squadrons carried out 125 patrols and 120 reconnoitring missions. Many squadron reports, moreover, have not yet been received in the region of St. Quentin, Ham, La Fère, Noyon."

"Over 50,000 kilogrammes of projectiles were dropped between March 22nd and 26th on convoys and moving trains and on gatherings of enemy troops, which suffered heavy losses from these air attacks, that were carried out with admirable boldness. Descending sometimes to a height of 60 ft. from the ground, our pilots attacked enemy contingents with their machine guns and fired thousands of cartridges. Among other operations must be mentioned that which we carried out in the afternoon of March 27th, when 60 fighting and 20 bombing machines swooped down upon masses of German infantry and put them to flight after mauling them severely. In addition, there were explosions in several munition depôts, and great fires were observed in the course of these bombardments."

"Our bombing machines belonging to the Eastern district co-operated in the general plan of action by attacking the great strategic railway stations of Metz, Sablons and Thionville. Several fires, accompanied by very violent explosions, broke out in the station of Metz-Sablons. During the night of March 23rd-24th

The French Champion.

LIEUT. FONCK now heads the list of leading French pilots, having shot down his 32nd opponent on March 31st. Previous to that Lieut. Nungesser was the leader with 31 successes.

How a French Pilot was Avenged.

THE diary of Sergeant Theilann, of the 3rd Company of the 36th Regiment of the 113th Division of German Infantry, who has been taken prisoner, and was on the German front in Alsace, facing Mulhouse, reports (Mr. Henry Wood writes from France) that on March 11th a French airman was brought

one of our squadrons dropped 3½ tons of explosives on the Badische Anilin Factory of Ludwigshafen, the chief German factory for the production of poison gas.

"Finally 37 German aeroplanes and six captive balloons were brought down and destroyed by our pilots, and five other machines by the anti-aircraft defences."

"*Salonica.*—British airmen carried out successful bombardments in the region of Doiran and on the railway lines Seres-Drama."

Paris, March 30th.

"During the days of March 27th and 28th our airmen, notwithstanding the bad weather, renewed their attacks against the enemy. Our machines, flying in groups, sprayed with machine gun fire, and dropped bombs on the enemy troops in the line of battle and in their concentration zones. Several of our machines made as many as three sorties in the one day; 17,000 kilogrammes of bombs were dropped in the Noyon-Guiscard-Ham region. Our chaser squadrons, in the course of numerous contests, brought down 13 German machines, seven of which were totally destroyed and six seriously damaged. Two captive balloons were also set on fire."

Paris, April 1st.

"On March 29th and March 30th, in spite of the rain and low-lying clouds, our airmen made many flights. Five thousand kilos of bombs were dropped on enemy cantonments and railway stations in the neighbourhood of St. Quentin, Guiscard and Roye. Our airmen frequently attacked with machine guns and bombs assemblies of enemy troops and dispersed them. Nine enemy machines and a captive balloon have been destroyed by our airmen. Italian bombing machines have taken an active part in recent expeditions and have carried out with magnificent audacity numerous raids over the enemy lines."

"*Salonica.*—French and Serbian airmen successfully bombed enemy cantonments in the region of Pardovica and Rozden."

Belgian.

"In the evening of the 21st inst. a German bombing aeroplane, hit by artillery fire, was forced to land in our lines. The crew of two officers and one non-commissioned officer were taken prisoners."

Havre, March 23rd.

Havre, March 27th.

"A hostile aeroplane has been brought down in our lines after a combat."

Italian.

"Our own and French aviators shot down an enemy machine above the Asiago Plateau. Beyond the Piave British airmen brought down three more hostile aeroplanes, and forced a fourth to land. South of Motta di Livenza our artillery set fire to an enemy captive balloon."

Rome, March 22nd.

Rome, March 23rd.

"Our aircraft dropped bombs on the railway lines of the enemy in the Val Lagarina."

Rome, March 25th.

"There was remarkable aerial activity above the fighting lines; four enemy machines were brought down on the left side of the Piave, two of them by British aviators. During the preceding day two more hostile aeroplanes had been shot down above Tonezza and the Montello by our own and French airmen. The railway lines in the Val Lagarina and the enemy aviation grounds on the Livenza were bombed by our aeroplanes."

Rome, March 26th.

"Along the whole front the usual artillery actions and moderate activity of our reconnoitring parties are reported. Five enemy machines were brought down at S. Pietro di Feletto and Biadene; a sixth hostile aeroplane was brought down by French airmen in the vicinity of Montebelluna."

Rome, March 28th.

"Two enemy aeroplanes brought down by British airmen fell to the east of S. Donà di Piave."

Rome, March 29th.

"Last night our flights dropped 6½ tons of bombs on the railway works of Mattarello and Primolano with very good effects; various big fires were observed. Two enemy aeroplanes were hit by our anti-aircraft fire; one of them was brought down and the other compelled to land beyond the enemy lines in the neighbourhood of Ponte di Piave."

Rome, March 30th.

"At dawn this morning our aeroplanes bombarded railway lines and aviation grounds of the enemy. An enemy machine was brought down by our airmen in the vicinity of Ponte di Piave, and another by British airmen near Spresiano."

Rome, March 31st.

"British airmen brought down six hostile machines above Manste and one on the Melette; two more were forced to land in this last area. One of our pilots shot down an enemy aeroplane on Campocoln, while another one was hit by our anti-aircraft batteries and fell in the Ornic Valley."

German.
"Since the beginning of the battle 93 enemy aeroplanes and six captive balloons have been brought down."

Berlin, March 26th.

"Cavalry Capt. Baron von Richthofen achieved his 67th and 68th aerial victories, Lieut. Bongartz his 32nd, First Lieut. Lörzer his 24th, Corporal Baumer his 23rd, Lieut. Kroll his 22nd, and Lieut. Thuy his 20th aerial victory."

Berlin, March 27th.

"Cavalry Captain Baron von Richthofen achieved his 69th and 70th aerial victories."

Berlin, March 28th.

"Cavalry Captain Baron von Richthofen achieved his 71st and 72nd aerial victories."

Berlin, March 29th.

"Cavalry Captain Baron von Richthofen obtained his 74th aerial victory."

Turkish.

"In the bombing raid on El Kutrani, on the Hedjaz railway east of the Dead Sea on March 19th, two British machines already announced as missing were forced to descend owing to our fire. The machines were burnt by their occupants. Two pilots and an observer were made prisoners."

Constantinople, March 22nd.

"On the Tigris an English aeroplane was shot down during an air fight."

Constantinople, March 27th.

"On the Euphrates an enemy aeroplane was brought down. The occupants, the Commander of the British Air Corps and a major of the General Staff, were captured. The machine will be ready for service after a few repairs."

down near the German lines. A moment afterwards the French artillery opened fire, and an under-officer was killed.

The next entry is: "March 13th.—The German aviator who brought down a French plane in front of us has found a tragic end. During the night it was decided to take apart the French machine. The German aviator was present. As the machine was upside down it had to be turned over. At the moment of doing so the machine-gun on the aeroplane was set in action and a bullet from it killed the German aviator, who happened to be standing just in front of it."

MODELS.

A Useful Glider.

THOSE who are thinking of making a glider, with which a great deal of sport and amusement can be obtained, will be interested in the following account of a glider built by Mr. S. W. Marsland, of Manchester. In sending the drawing and details he says:—

"The ideas are my own entirely, and taking in all the advantages and disadvantages, the machine has been a decided success as a glider.

"The main particulars and dimensions are given in the drawing, but I think a brief description would make things a little clearer.

"The main planes are made of seasoned osiers, tapering from $\frac{5}{8}$ in. to about $\frac{1}{16}$ in. They are two ft. long with a chord of one ft., slightly cambered and single covered with doped fabric. The joints are screwed and bound with linen tape for strength.

"The fuselage consists of a single piece of deal wood $\frac{1}{2}$ in. thick, and tapering from a maximum of three ins. to a minimum of $1\frac{1}{2}$ ins. in depth.

"The undercarriage consists of two streamlined struts

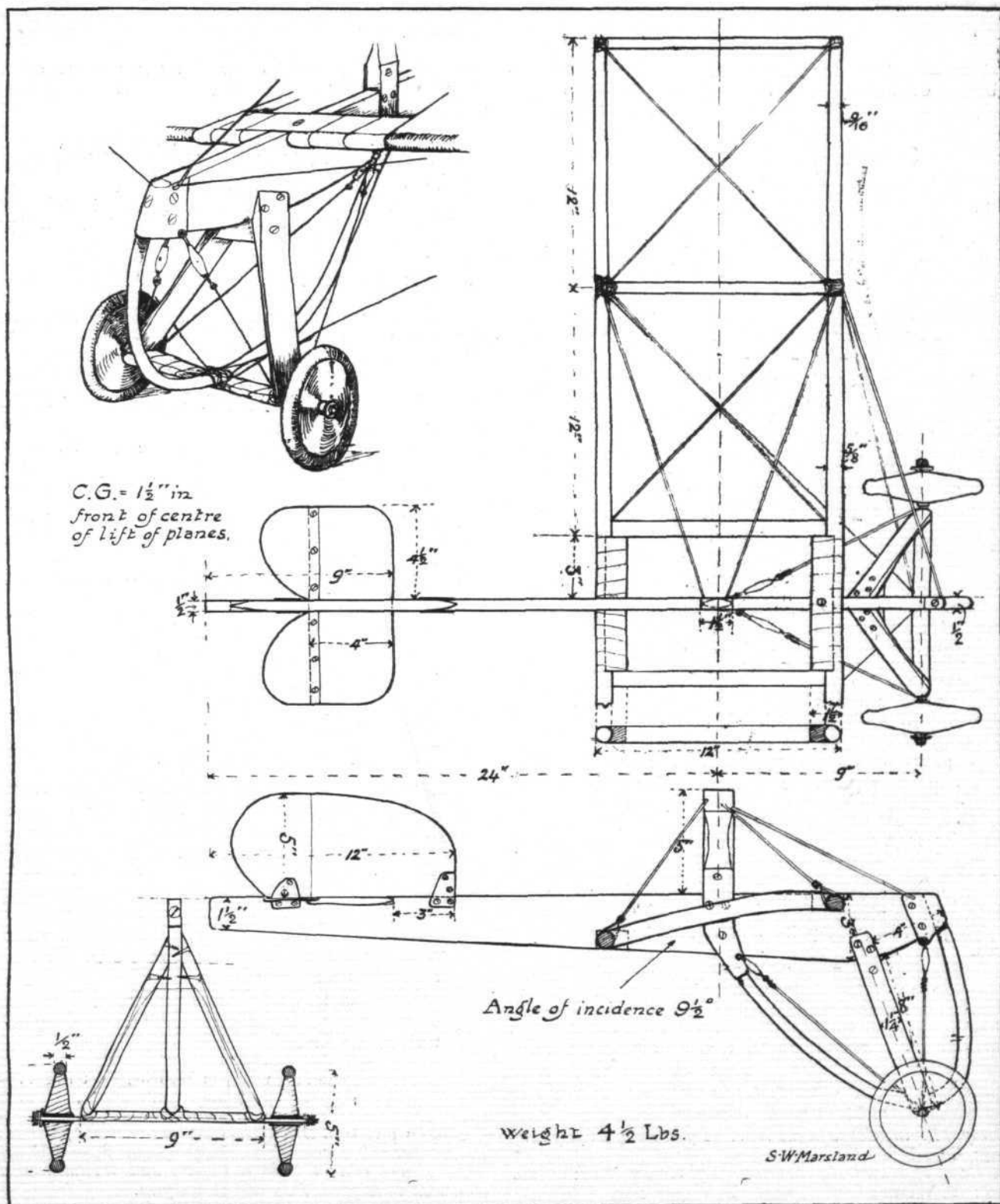
running from the fuselage, to which they are screwed, to a wooden axle; underneath this is a $\frac{1}{2}$ -in. steel axle, both being bound together with tape. The wheels are solid; and have a rubber tyre $\frac{1}{2}$ in. diameter. They are bushed with brass tubing $\frac{5}{16}$ in. diameter, so that the tube projects about $\frac{1}{4}$ in. on either side of the wheel.

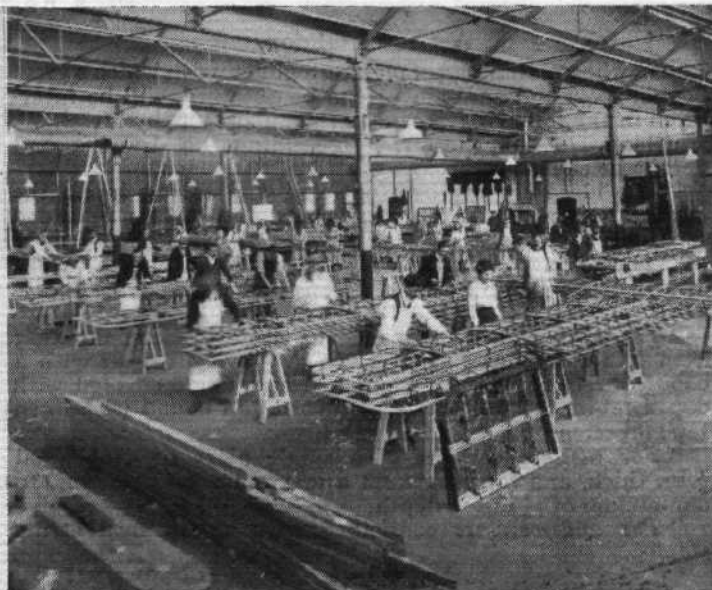
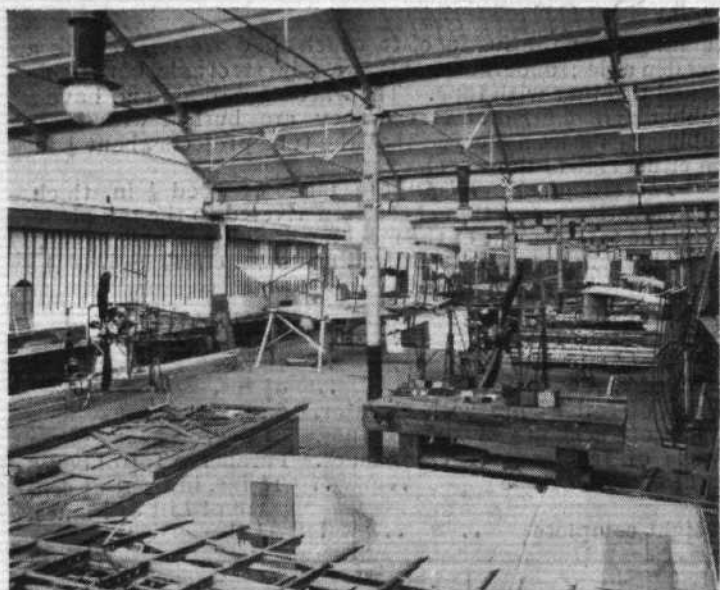
"The tail planes and fin are made of wood $\frac{1}{8}$ in. thick. The elevators are of thin sheet iron riveted to the tail plane.

"The total weight of the machine in flying trim is $4\frac{1}{2}$ lbs.

"The following are the leading characteristics of the glider:—

Dihedral Angle	About 4 deg.
Span of Main Planes	2 ft. $6\frac{1}{2}$ ins.
Chord of Main Planes	12 ins.
Span of Tail Planes	$9\frac{1}{2}$ ins.
Chord of Tail Planes with elevator.	6 ins.
Angle of Incidence of Main Planes.	$9\frac{1}{2}$ deg.
Angle of Incidence of Tail Planes.	Parallel to Top of body.
C. of G. of Machine	$1\frac{1}{2}$ ins. in front of centre of Lift of Planes.
Weight complete	$4\frac{1}{2}$ lbs.





1910-1918.—In 1910 Humbers took up the building of aeroplanes, in proof of which the picture on the left bears evidence. On the right—1918—is a portion of the wing-assembling shop in the present aeroplane section of the works.

SIDE-WINDS.

MOTORISTS in the North will be interested to hear that Messrs. S. Smith and Son (M.A.), Ltd., the well-known motor accessories house have opened a depôt at 12, Jackson's Row, Deansgate, Manchester, where they will be represented by Mr. J. E. Feay. They propose to carry a good stock of accessories at this depôt and to make it a centre of distribution for Lancashire and Yorkshire. Motorists are invited to call when passing through Manchester, and they will always be sure to find something to interest them.

THERE is much work which has been done in connection with aeroplane building which cannot be taken to the machine, and so the machine must be taken to the work. Realising this, the Sun Electrical Co., Ltd., of 118-120, Charing Cross Road, have made a speciality of portable electric tools, and have just published a list of some of their drills, grinders and buffers. This gives full dimensions of each tool, together with its speed and capacity. The firm will be pleased to send a copy to anyone applying to them at 118-120, Charing Cross Road, W.C.

HAYS, HUNTER AND STANDEN, LTD., of London and Wolverhampton, whose name is so well known in connection with "Don" brake lining and other specialities, are among the people who look ahead. Finding their business increasing in all directions and in anticipation of further developments after the war, they are, on March 31st, moving their headquarters to 71, Southwark Street, S.E.1, which from that date onwards will be their only London address.

THE Apollo Manufacturing Co. are finding the demands for their No. 8 sparking plugs for rotary aero engines, still on the up grade. This is not surprising bearing in mind a little note which has just been sent by one of the largest manufacturers of rotary engines. This says that a set of plugs which they have been testing had completed 126 hours' ordinary test bed running and are still running well. The report ends, "This is an extremely satisfactory result." The Apollo Co. will be pleased to send an illustrated list to any one applying to them at Apollo Works, Moseley Street, Birmingham.

THOSE who are interested in the phases of the moon should note that the April edition of the C.A.V. moon chart is to hand. Several improvements have been effected by Mr. A. H. Midgley, and, of course, it has been adjusted to "summer time."

PUBLICATIONS RECEIVED.

The Royal Flying Corps in the War. By "Wing Adjutant." London: Cassell and Co., Ltd. Price 2s. net.
Text Book of Naval Aeronautics. By Henry Woodhouse. London: T. Werner Laurie, Ltd. Price 35s. net.

NEW COMPANIES REGISTERED.

ADASTRAL, LTD., 1, Stanley Gardens, Hampstead, N.W.—Capital £5,000, in 4,500 shares of £1 each and 10,000 shares of 1s. each. Aeronautical and general engineers, &c. Acquiring from F. J. La Roche the trade mark 375,007 "Adastral." First directors are F. J. La Roche (French) and P. C. Edmunds (English).

LECONFIELD AIRCRAFT WORKS, LTD., 354, City Road, E.C. 1.—Capital £1,000, in 1,000 preference shares of 1s. each and 950 ordinary shares of £1 each. Acquiring an interest in the Leconfield Works, Canonbury, N., aircraft manufacturers, sheet metal workers, &c. First directors, A. Allinckx, L. van de Putte, F. van Pee and J. de Putte.

OAKLANDS ENGINEERING CO., LTD., 17, Basinghall Street, E.C. 2.—Capital £1,000, in £1 shares. Manufacturers of and dealers in motors, motor cars, accessories, aeroplanes and dirigible balloons, &c. First directors, A. H. Preen and E. de Laspée.

WORMS AIRCRAFT CONSTRUCTION CO., LTD.—Capital £20,000, in £1 shares (5,000 preference). Acquiring from M. Worms the business of a manufacturer and designer of aircraft and aircraft parts and accessories, &c., carried on by him as the "Worms Aircraft Construction Co." First directors: M. Worms, F. Wright, L. G. Worms, R. E. Jones and A. Barnes.

Aeronautical Patents Published.

Applied for in 1917.

The numbers in brackets are those under which the specifications are printed and abridged, &c.
Published April 4th, 1918.

- 3,366. G. W. PARNALL. Wood pin for use in jointing laminæ of aeroplane propellers. (113,829.)
3,407. H. MIDDLETON. Steering screw propellers. (113,833.)
6,494. W. H. PEASE. Spring buffers for landing gear of aircraft. (113,874.)

If you require anything pertaining to aviation, study "FLIGHT'S" Buyers' Guide and Trade Directory, which appears in our advertisement pages each week (see pages xlviii, xlix, and l).

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